THE RUBBER AGE AND TIRE NEWS

JUNE 25, 1918 VOL. III. NO. 6

Member of the Associated Business Papers, Inc.

INDEX TO CONTENTS

	PAGE
The Labor Factor in Production—V	245
The Malm Rubber Punching Machine	248
Technical Course in Rubber Manufacture—Physical Testing of Compounded Materials	249
Separation of Combined Sulphur in Reclaiming	252
Information Exchange	252
Editorials	253
Doings of Rubber Men	255
Rubber Trade News Items	256
Building Activities in Rubber Circles	256
The Miller "Black Beauty" Line	257
American Rubber Patents	258
Incorporations	258
Government Purchases Rubber Goods	258
Getting Miles Out of Tires	259
Dynamometer Tests for Tires	260
News of Interest to the Tire Trade	261
Markets	262
Among the Dealers	265

THE GARDNER-MOFFAT COMPANY, Inc., *Publishers*

120 WEST 32D STREET, NEW YORK

Room 310 Evening Star Building, Washington D. C.

SUBSCRIPTION PRICE: ONE DOLLAR PER YEAR, SINGLE COPIES TEN CENTS. CANADA: TWO DOLLARS A YEAR. FOREIGN: THREE DOLLARS A YEAR. COPYRIGHT, 1918, BY THE GARDNER - MOFFAT COMPANY, INC., PUBLISHERS.

ISSUED ON THE TENTH AND TWENTY-FIFTH OF EACH MONTH. FORMS CLOSE FIVE DAYS PREVIOUSLY. ENTERED AS SECOND-CLASS MATTER MARCH 26, 1917, AT THE POST OFFICE AT NEW YORK, N. Y., UNDER THE ACT OF MARCH 3, 1879

TRENTON N.J., U.S.A. **ESSEX RUBBER COMPANY, Inc.** TRENTON N.J., U.S.A.

"SHED-WET" SOLES
FIBRE-RUBBER SOLES
"ESSEX" RUBBER HEELS

MOLDED SPECIALTIES

Trade Mark

AUTOMOBILE ACCESSORIES

INNER TUBES, CEMENTS, ETC.

MOLDED RUBBER GOODS

MAGNESIA—MAGNESITE
CALCINED POWDERED BOLTED
LARGEST AMERICAN PRODUCERS

1890 L.H.B.CO.

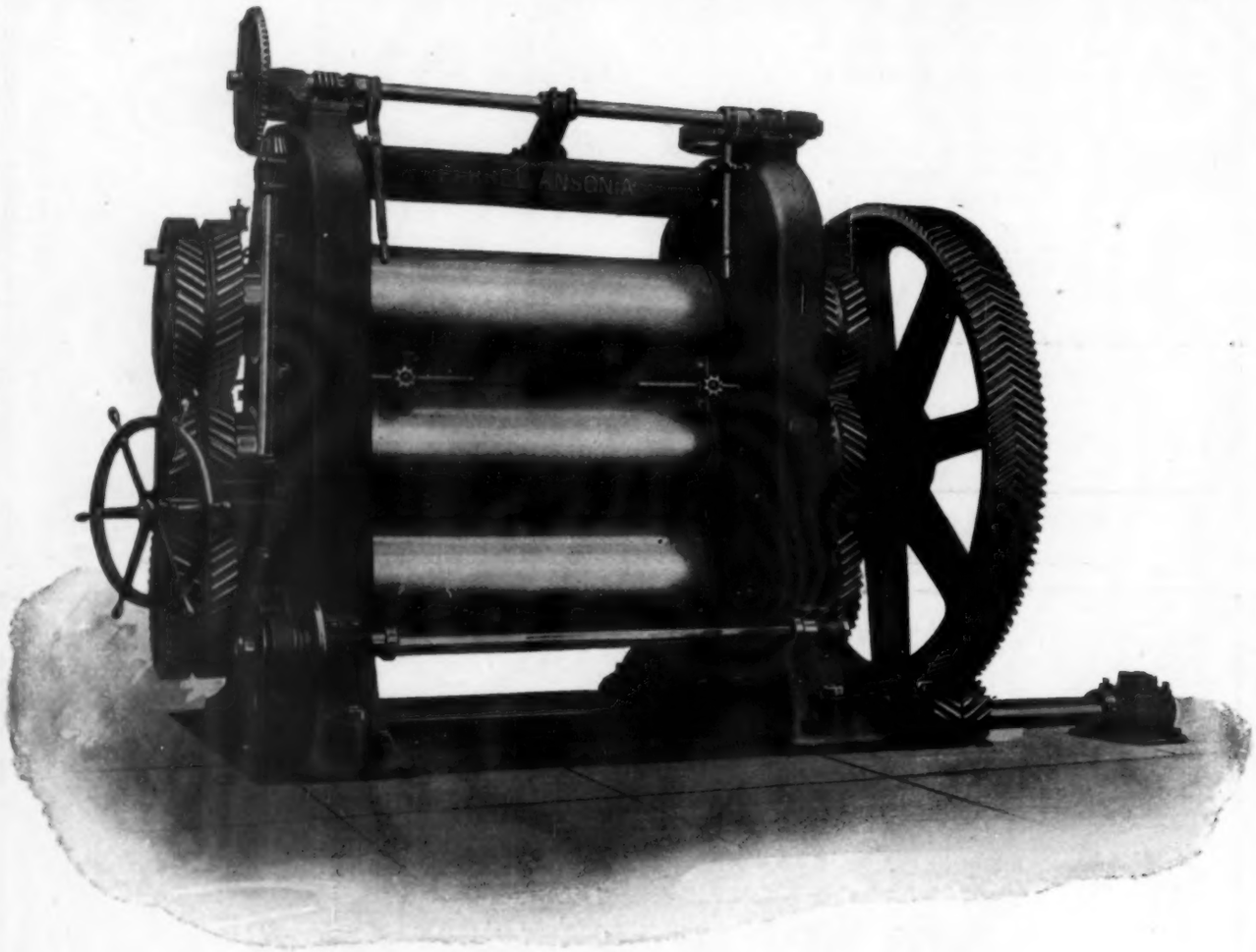
ACCELEMAL—LITHARGE
ANTIMONY-SULPHUR-LIME
CARBON—LAMP BLACK
LITHOPONE

L. H. BUTCHER COMPANY, Inc.

ESTABLISHED 1890

NEW YORK LOS ANGELES SAN FRANCISCO

FARREL
Rubber Machinery



We are Engineers and Builders of a Complete Line of

Washers, Mills, Calenders, Presses, etc.

SHAFTING *and* DRIVES

Special attention given to the making of cut double helical "noiseless" drives for mill and calender operation

Farrel Foundry & Machine Co.

ANSONIA, CONN., U. S. A.

Branch Office: 810 Union National Bank Building, Cleveland, Ohio.

THE RUBBER AGE AND TIRE NEWS

The Labor Factor in Production—V

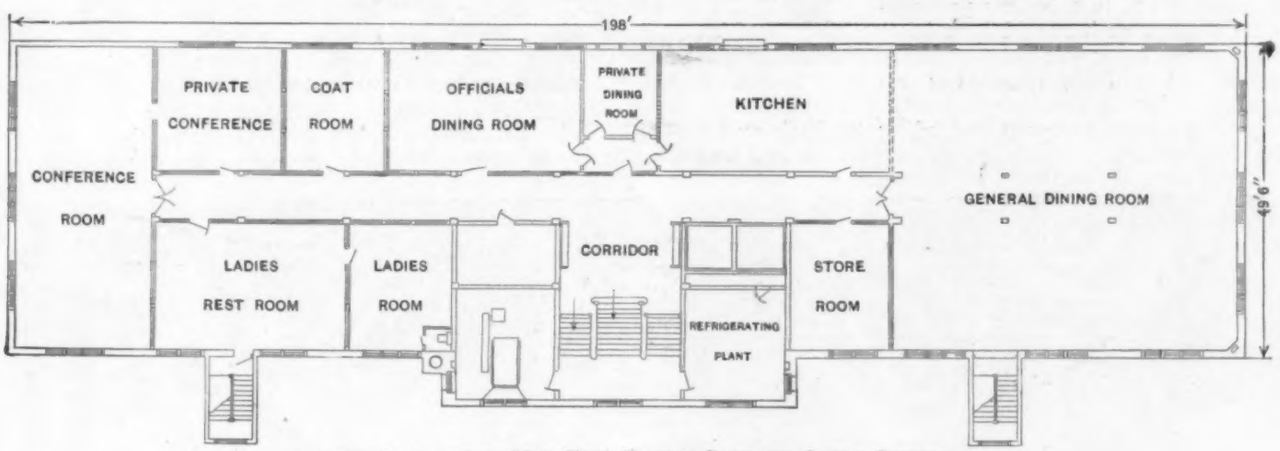
By J. C. Long

This is the fifth of a series of articles dealing with questions which confront the personnel manager. The organization of a Labor Department and the organization of labor itself have already been discussed, as has the housing of employes by the Government, by private organizations outside of the factory and by the factory itself. This article takes up the question of the factory restaurant.

In a careful discussion of the improved methods of managing relations with employes, one of the most obvious departures which comes to mind is the establishment of a restaurant where the employes may get good meals at moderate prices. The connection between better food and better production is so direct that this type of personnel management is likely to prove more satisfying to the factory administration than other steps which might have a less immediate effect.

Wherever factories are running night shifts some form of lunch room should be provided not only from the standpoint of the health of the employes, but also from the standpoint of getting better production.

One argument for factory restaurants aside from health and production is the fact that they help to promote solidarity in the organization. In a time like the present, when the labor turnover at most plants is unusually high the creation of interest in the social life of the factory is an important feature in maintaining a stable working force.



FLOOR PLAN OF THE NEW FISK RUBBER COMPANY OFFICE BUILDING

The Firestone Company serves *table d'hôte* lunches at 25 cents each. and this restaurant is used by three thousand employes daily.

Edward C. Maginn, who manages the Firestone restaurant, is an expert on installing and operating factory restaurants. He is quite critical of the average factory restaurant. He says: "After visiting about thirty of the largest restaurants of this kind I have arrived at the conclusion that approximately 75 per cent of all the installations made are absolutely wrong.

"Many of these catering ventures are begun in a small way. A kitchen is installed and a small dining-room for the purpose of feeding just a few office employes or officers, and the scope of the place is later enlarged. The restaurant is usually located in some obscure place in the factory and little attention is paid to its efficiency. Any addition that may be made subsequently is apt to be made in a haphazard manner, with the customary result that many such institutions lose money."

Mr. Maginn states further that "Even in those places where a large building has been erected for the especial purpose of housing the restaurant, you will almost always find the arrangement and design of kitchens and dining halls handed over to the architect who follows his own ideas. The man who has to take charge of the building and do the catering is seldom considered until it is too late.

Going into details Mr. Maginn urges that "The kitchens are wrongly proportioned, dining-rooms badly laid out and insufficient storage planned. Many details which the ex-

perienced caterer would suggest are entirely left out of the average architect's plans for such establishments.

"To these causes stated can be traced the losses that many concerns are experiencing. Operating costs are far too high, as a result of faulty installation. Designers locate a storeroom where it is not accessible to the kitchen, possibly necessitating the services of one man to keep up the kitchen supplies, whereas if the storeroom had been properly located under the kitchen and a dumbwaiter or a small elevator installed, it would eliminate the services of one man."

Continuing, the Akron expert points out that "In a building erected for one large concern several years ago, the architect entirely forgot to provide any means of garbage disposal for the kitchen. This necessitated the garbage being carried out of the kitchen by two men, greatly increasing the operating costs of the place. In another case no floor drain was placed in the bakery, kitchen or dining-room, which omission compelled the employment of additional porters."

Mr. Maginn also told of one concern which put in a bakery just one-third as large as it should have been, and in this case it was not possible to obtain the additional supplies required by local purchase, thus causing serious embarrassment in feeding the employes.

In still another case the laundry was but half large enough to handle the table linens where it should have been large enough to take care of these and the factory laundry work as well. As this concern's laundry work had to be sent several miles, an installation of a laundry of proper capacity would have saved about $1500 a year.

Fisk Experience

The Fisk Rubber Co., Chicopee Falls, Mass., operates a restaurant system which is run at approximately cost. There is a restaurant for the administrative force, where a *table d'hôte* lunch is served at 25 cents per person. There is also a cafeteria restaurant for the girls in the office, and there is a room in one of the buildings where package lunches are served for the factory men. There is still another small dining room which is used for the chief officers of the company when they so desire. The restaurant, however, is a small feature of the industrial relations work at Fisk since most of the men live in the immediate vicinity and can go home at the noon hour.

The B. F. Goodrich Co., Akron, Ohio, provides lunch rooms, run on the cafeteria style for its various factory forces. Soups, sandwiches, coffee, milk, and desserts are sold on a 3c. basis and tickets are sold, both in strips and books. The lunch rooms are not run on an actual cost basis, as the company figures that there is some additional gain in production as a result of the employes having food of the best quality.

The Republic Tire & Rubber Co., Youngstown, Ohio, runs a restaurant for its 2400 employes in connection with its clubhouse. This restaurant has a capacity of 1000 meals daily and serves on an average of 800 meals per day. The original cost of the equipment for ovens, urns, tableware, etc., was $3,933.71. The restaurant is not run on a cost basis, as a matter of fact it often runs behind $16 and more a day.

Some Other Factories

The Norton Company of Worcester, Mass., feeds about 175 people a day in their cafeteria. The cost of feeding these people is stated to be about forty-seven cents each. They say: "Our people have perhaps been spoiled a trifle, as we have in the past years given rather more and better food for the money than they could buy in the neighboring restaurants, so that their tastes have been a little over-cultivated.

"We intend to make the cafeteria break even as nearly as possible, but have not had great success along that line owing to our inability to keep up with advancing prices. The operating cost of running the cafeteria is about 10 per cent more than it was a year

KITCHEN OF FISK RUBBER COMPANY RESTAURANT, CHICOPEE FALLS, MASS.

ago. This, however, is not a correct index, as our people are learning more and more to do with lower priced foods.

"All food is served *à la carte*, there being no club luncheon, so that each one chooses for himself what he will eat and what he will pay.

"In addition to this service in the cafeteria we are giving what might be called a canteen service in five other parts of the plants for workmen who bring a portion of their meal but who wish to buy soup, pie, coffee and so forth, with which to supplement it. This serves in the vicinity of 1000 to 800 per day, but inasmuch as few of these people buy a full meal, we have not included them in the total previously given."

The General Electric Co. at West Lynn, Mass., relates the following as the situation there:

"We charge thirty cents for luncheons served in our Administration Building, which is table service with waitresses. In our foremen's lunch room with table service and waitresses, we charge twenty-five cents for the regular luncheon, using glass table tops, which reduces the laundry expense, and this with some other slight reductions in expense accounts for the difference in price from that of the lunch in the Administration Building with similar service.

"We plan to run our restaurants on a self-supporting basis, including all items such as light, heat, insurance, taxes, depreciations, etc.

"During the past year we have increased only approximately three per cent. in the ratio of cost of food to receipts and we were able to reduce our general operating expenses approximately five per cent., which is probably due to the fact that we have paid very close attention to every restaurant detail and have been able to reduce some of the expense in this way.

"Our restaurant system is serving approximately 2200 meals daily.

"In our cafeteria restaurants, of which we have two, we serve dishes ranging from five cents to twenty cents per portion, and the average luncheon purchased by the patrons amounts to from twenty cents to thirty cents."

Some New York City Examples

The Loose-Wiles Biscuit Co. of Long Island City serves luncheon to some 1500 employees daily. The separate dining rooms for men and women are spotless and supply the best food that the market affords at cost.

The restaurant manager estimates the price of the average meal check turned in at only fifteen cents. This is not surprising when we see how close the prices are shaved. These are some of the prices posted on the board: "Bread, 1 cent; Butter, 1 cent; Soup, 3 cents; Coffee, 3 cents; Pie, 4 cents," and meat orders from 15 cents up.

While the food is good and abundant, every effort is made to eliminate all waste. Such laundry work as is required is done on the premises, but the use of paper napkins reduces this to a minimum.

The employes are supplied with lunch in three shifts, the office force coming into the dining rooms last.

The restaurant as equipped today will accommodate 600 at once. The average each day at present who are served is 1500, but the equipment (rooms, kitchen appliances, etc.) is sufficient to supply 5000 with luncheon if required.

The American Ever Ready Co., also located in Long Island City feeds about 1200 at luncheon each day. The cost there for a full lunch, *à la carte*, is estimated at twenty-five cents. Prices run as follows: Bread and Butter, 3 cents; Soup, 5 cents; Pies, 5 cents; Meat Order with Potatoes, 15 cents; Other Vegetables, 5 cents.

The purpose of the American Ever Ready Co. is to furnish good food at cost. There are separate dining rooms for the office force and the other employes. The women are served in the dining room for the office force before the men come in. There is also a club dining room, where there is linen on the tables. The office dining room has glass-topped tables. The general dining room for the employes has long wooden-topped tables with stools.

The American Ever Ready Co.'s restaurant is placed on the roof and enjoys an abundance of light and air. There is also a large amount of unoccupied area on this roof, and in fine weather the men use it as a promenade and smoking park. In bad weather they smoke in the general dining room.

(To Be Continued)

MAIN DINING HALL, REPUBLIC RUBBER CORPORATION, YOUNGSTOWN, OHIO

Book Review

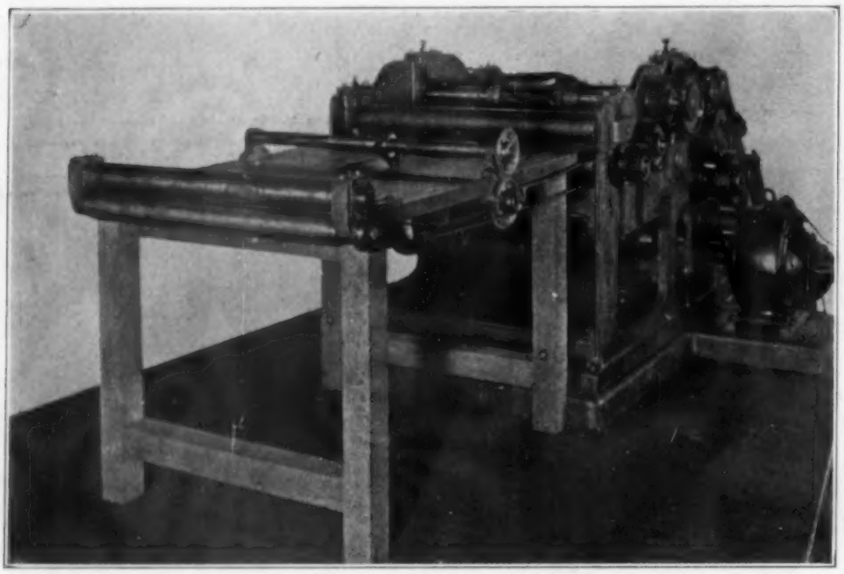
Applied Motion Study.—By Frank B. and Lilian M. Gilbreth. 220 pages, 8vo., illustrated. Published by Sturgis & Walton Co., New York. Price $1.40.

This book aims to present an outline of the fields in which motion study has been and can be applied, the way in which it is applied and the effect of the application. It shows the way in which waste can be eliminated in actual practice, how this has been accomplished in the past, and future possibilities. It is published at this time as a definite suggestion for repairing and offsetting the wealth that is being destroyed by the war. It shows the studies the authors have made in various lines, the time saving which they feel may be accomplished, and definite suggestions as to eliminating monotony in repetition work.

The plan endeavors to arouse the worker's interest and to secure his cooperation. It supplies incentive and stimulates investigation. The judicious use of the suggestion box is relied upon to induce improvement and invention, and it points the way to stimulating the worker so as to further his advancement toward an executive position.

The Malm Rubber Punching Machine

The general practice has been to cut blanks for rubber soles, heels, water bottles, bathing caps, inner tube caps and similar articles with dies and beam dinkers, or by hand, using a metal pattern and a moistened knife. A new machine for performing this work has been placed on the market by the Malm Engineering Co., Philadelphia, Pa., and is fitted with multiple rotary cutting dies for any style of punching or blanking in either uncured rubber stock coming from mill or calender rolls, or in stock fed direct from the tubing machine. It will also punch cured stock, soft rubber, hard rubber, and cured or semi-cured rubberized fabric.

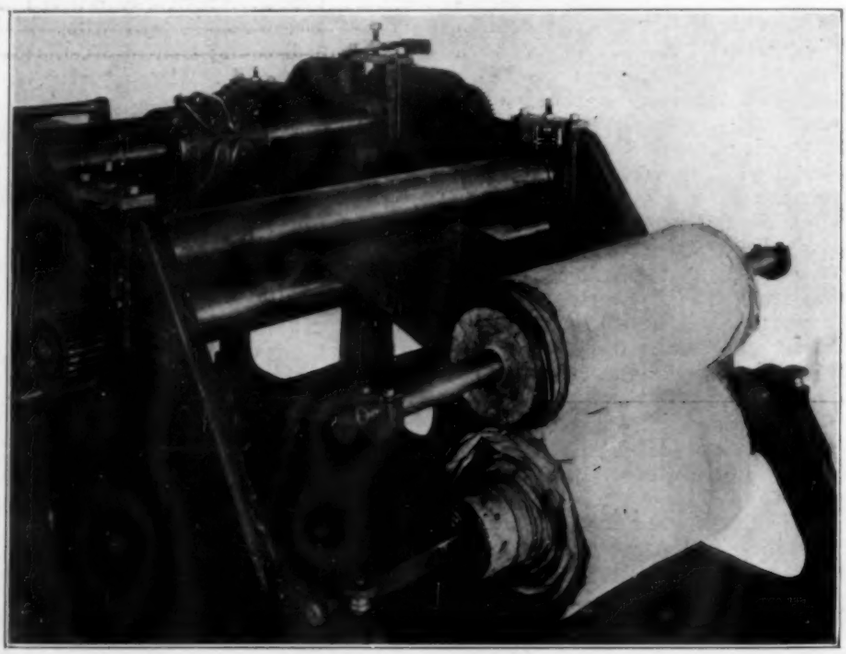


Rear View of Malm Rubber Punching Machine

Die Drum, Dies and Blanks

The Malm rubber punching machine is entirely automatic in its operation, the operator's work being limited to the feeding of the machine and the removal of the finished blanks. There is, of course, no danger involved in this work. The machine runs at very high speed and its production is governed by the size of the pieces to be punched. In standard No. 8 and No. 9 soles, the output using the full width of the machine is said to be 1380 blanks per minute. In No. 9 and No. 10 size heels, the output is about 2,000 blanks per minute. The design and construction of the dies is such that there is said to be no unnecessary waste of material, scrap being almost eliminated. The dies can be quickly removed or changed.

The machine is regularly equipped with a counter, and a stacking device is supplied at extra cost for stacking the blanks as they come from the machine. One of the accompanying illustrations shows the construction of the die drum, also various shapes of sole dies, soles and heels. The thickness of the rubber stock used may vary from a thin sheet less than one-sixty-fourth of an inch thick up to one inch thick. Provision is made on the machine for feeding the various thicknesses of stock and the machine is driven direct from either a D. C. or an A. C. motor. The maximum width of sheets that can be punched is three feet two inches, and the floor space without the stacking table is about 7 ft. 1 in. x 8 ft. 3 in. The added space for the stacking table is 3 ft. 10 in. x 5 ft.



Front View of Malm Rubber Punching Machine

Vulcanization Tests

Results recorded in an interim report on investigations that are being conducted by the Imperial Institute, London, England, on samples of plantation *Hevea* rubber confirm the previous conclusion that rubber prepared in such a way as to remain moist for a considerable period invariably cures more rapidly than rubber prepared from the same latex and dried thoroughly soon after coagulation. The rubbers retaining most moisture appear to cure more quickly than those containing less water. An interesting feature of the results recorded in this report is that the above mentioned effect is produced even when preservatives, such as creosote and formalin, are added to the latex prior to coagulation.

Technical Course in Rubber Manufacture

By H. E. Simmons, M.S.

Professor of Chemistry in the Municipal University of Akron

Copyright, 1918, by The Gardner, Moffat Co., Inc.

SECTION XXIII

Physical Testing of Compounded Samples (*Continued*)

Next in the order given in the previous article is the property of "Hardness." This is a property, very difficult to define, which is possessed by all samples of rubber from the softest vulcanized rubber on one hand to the hardest vulcanite on the other. Various instruments have been manufactured and sold for the purpose of determining this property and yet no entirely satisfactory instrument is to be had at the present time. The general plan upon which these instruments have been constructed consists of a plunger of some sort with a point varying from a blunt needle up to a foot of quite measurable area. The measurement is taken of the depth this plunger will sink into the sample under a definite given load: Or what amounts to the same thing the measurement of the force necessary to cause the point of the plunger to sink into the rubber a definite depth. Under all circumstances such an instrument should have a point sufficiently blunt that the surface of the sample shall not be ruptured during the test.

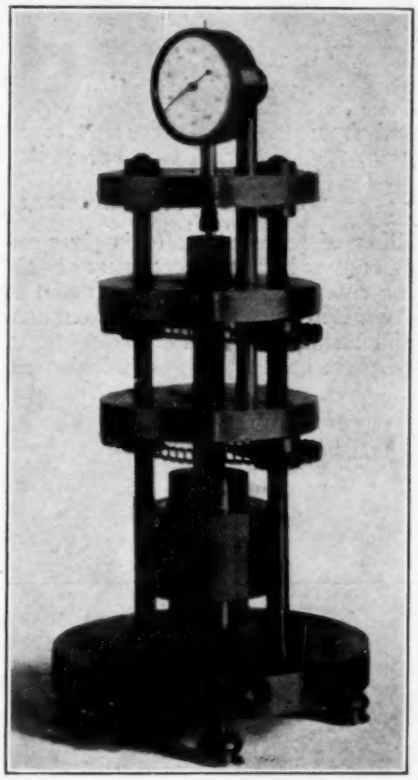
These tests are the measure of the penetration by a blunt point without rupture of the rubber. The "rebound" may be considered a test for resiliency.

The instrument for this purpose consists of a metal tube with a slot along one side which is graduated from zero at the bottom to 100 at the top. A ball is placed in this tube in such a way that it may be allowed to fall freely through the tube its graduated height when in a vertical position. The tube is put in place over the sample of rubber, which must be resting upon a firm base, in such a position that with the ball resting free on the sample it levels at zero on the scale. The ball is then raised until it occupies the same position with reference to the 100 mark. It is then released and the distance it rebounds is carefully noted. This test is repeated as many times as seems desirable preferably at several different points on the sample, then the average of these results is taken.

This test is especially valuable on stocks used for cushioning.

Hysteresis

One phase of rubber testing which has received but comparatively little attention and that quite spasmodic, is the so called hysteresis test which really has to do with the contour of the curves representing the relation of the stress to elongation under the conditions of extension and recovery on not only the first but also on repeated extensions. This includes:



A Plastometer

1—The detail of the contour of the respective curve.

2—The area under each respective curve which in turn represents the work required for extension, and the work done by the sample in retracting, the difference representing the work lost or hysteresis loss.

3—The relation of the contours and areas represented by these different curves to each other. This of course includes the relation between the percentage of elongation produced by the same load under repeated flexing as well as the relation of the loads required to produce the same elongation. It also takes in the increase in set under repeated flexing.

The reason for the lack of progress in this promising field becomes quite evident after an inspection of the necessary prerequisite of test specimens. These may be enumerated as follows:

1—The piece must be longitudinal and of uniform cross section throughout the entire length on which the graph is being recorded.

2—The several pieces which are being compared should be of the same cross section because of the difficulties in correcting for each of the infinite number of individual points on the curve for the difference thus produced and the resulting difference in the area produced underneath.

3—No portion of that section of the piece on which the record is being made can be subjected to the action of the jaws of the testing machine because of the numerous variations produced by cutting, tearing, slipping, etc.

4—Pieces with enlarged ends are entirely out of the question because of the great difference in percentage of ultimate elongation produced in various increments of the length of the piece under any increment of load. These differences are so great as to completely obliterate those characteristics which are most sought.

5—Ring-shaped pieces are open to the same objection because of the great difference between the length represented by the inner and outer circumferences.

The difference in cross section between two pieces of the same shape may be either corrected, or, in case the cross section area is sufficiently large, the difference may become so small as to be negligible.

Two methods of getting around the other difficulties have been suggested to the writer. The one is to follow two marks made on the narrow part of an ordinary longitudinal test piece with trammel points which are so connected with the recording device that only the actual increase in distance between the points is recorded. This device is a feature of the Tinius Olsen rubber testing machine. It is, however, practically impossible to produce a smooth curve with this device. The other method is to attach clips similarly rigged, at the two marks on the piece. This scheme

offers a chance for good development.

Assuming that these points have been satisfactorily met, let us proceed to discuss the results to be obtained.

Many men make much use of the relative general contour of the curves produced in the ordinary manner by the usual testing machines. They find themselves able to check their ideas on cure, stiffness, etc., with much greater precision. Some make a practice of accurately comparing several points on the curves. It would therefore seem highly desirable to have an equation for the entire curve in which the various constants would present a ready and accurate means for such a comparison.

M. Cheneveau and Heim have attempted such an equation (*Sur l'extensibilité du caoutchouc vulcanisé Compt. rend. p.* 320, *Feb.* 6. 1911, and in *The Rubber Industry* reports of the London convention in 1911). M. Cheneveau in *Le Caoutchouc et la Gutta percha* has later retracted his belief that the equation holds. E. L. Davies published a short article (*Jour. Ind. to Eng. Chem. VI.*, 985, 1914), with confirming experiments. In his lectures at the Municipal University of Akron, Mr. Davies has explained some further work along this line as follows:

The equation does not seem to hold on the return curve or on the curve for successive cycles nor has he been able generally to apply the methods for obtaining the constants as explained by Cheneveau and Heim. A much more simple and accurate method is presented through resorting to the principles of calculus. Fig. I represents the ordinary type of curve:

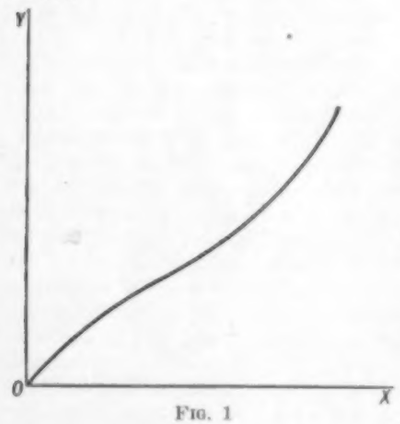


FIG. 1

Assume that this curve is represented by the Cheneveau and Heim equation:

(1) $x = ey + a \sin^2 by$

$$\frac{dx}{dy} = e + 2ab \sin by \cos by$$

(2) $$= e + ab \sin 2by$$

(3) $$\frac{d^2x}{dy^2} = 2ab \cos 2by$$

Now if we remember that

(4) $$\frac{dy}{dx} = \frac{1}{e + ab \sin 2by} = \text{the slope}$$

of the tangent at any point we may draw the tangent and at any point find its slope and substitute in this equation.

Then again bearing in mind that the second derivative is equal to zero at the point of inflexion, if we are able to estimate this point with fair accuracy to be at the point represented by x' y', we have

(5) $$\text{Cos } 2by' = 0$$

(6) or $$2by' = \frac{\pi}{2}$$

whence $$b = \frac{\pi}{4y'} = \frac{45^\circ}{y'}$$

and from (4) since at $y = 0$ or at $y = 2y'$, $\sin 2\,by = 0$ we have

$\frac{dy}{dx} = \frac{1}{e}$ = slope of the tangent at either of these points (this gives another proof of the correctness of taking e as the inverse of the tangent at the origin as suggested by Cheneveau and Heim).

Again at the point of inflexion $\sin 2\,by' = 1$ whence (8) $\frac{dy}{dx} = \frac{1}{e + a\,b}$ = slope of the tangent at the point of inflection and from (1) and (6)

$$x' = ey' + a \sin^2 \frac{\pi}{4}$$

$$= ey' + \frac{a}{2}\left(2 \sin^2 \frac{\pi}{4}\right)$$

$$= ey' + \frac{a}{2}\left(1 - \cos \frac{\pi}{2}\right)$$

$$= ey' + \frac{a}{2}$$

wherefore

(9) $$a = 2\,(x' - ey')$$

We do not need any of this proof for a working basis, but have simply to remember that having located the point of inflection at x' y' we can draw the tangent at either the origin (where the curve is apt to be irregular and therefore not ordinarily to be chosen) at the point of inflexion, or at the point where the ordinate of the point of inflexion and having drawn it determine its slope. The constants are then found from the following simple equations:

$$a = 2\,(x' - ey')$$

$$b = \frac{\pi}{4y'} \text{ or } \frac{45^\circ}{y'}$$

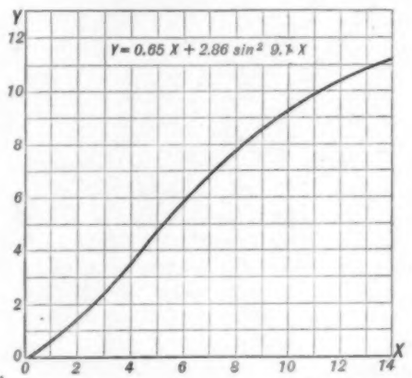
e = the inverse of the slope of the tangent at the origin or at the point where the ordinate is twice the ordinate of the point of inflexion.

Or e may be determined by equating $\frac{1}{e + ab}$ to the slope of the inflexinal tangent.

If we wish to find the area under the curve up to any point represented by $x_p\, y_p$ we may integrate this equation as follows:

$$\text{Area O, } (x_p\, y_p),\ x_p,\ \text{O} = \int_{y_o}^{y_p} ey\,dy + \int_{y_o}^{y_p} a \sin^2 by\,dy$$

$$= \frac{ey_p^2}{2} + \frac{ay_p}{2} - \frac{\sin 2by_p}{4b}$$



The chart here reproduced was drawn by means of clips attached at marks 2 in. apart on a test piece measuring 0.5 in. by 0.125 in. It was drawn on cross section paper ruled 20 lines to the inch. Because the recording device reversed the curve on the chart, the equation becomes

$$y = ex + a \sin^2 bx$$

The unit of ordinate 0.5 in. represents 34 per cent elongation; the unit of abscissa represents 167.5 lb. per sq. in. stress. One square inch therefore represents 22.32 ft. lb. of work done.

By taking the point of inflexion at $x_1 = 4.95$ and $y_1 = 4.65$ and using the foregoing equations.

$a = 2.86$

$b = 9.10$ deg. $= 0.18$ radians.

$e = 0.65$

and the equation $y = ex + a \sin^2 bx$ becomes

$$y = 0.654x + 2.86 \sin^2 9.1x$$

Comparing with actual figures we get

Abs.	X lbs. per sq. in.	Y computed. Ord.	% Elong.	Y actual. Ord.	% Elong.	Diff. (%). Elong.	Error.
1 = 0.5"	167.5	0.72	24.6	0.63	21.6	3.0	14.5
2	335.0	1.58	54.0	1.45	49.6	4.4	11.2
3	502.5	2.55	87.2	2.47	84.5	2.7	3.1
4	670.0	3.61	123.0	3.55	121.5	1.5	2.4
5	837.5	4.71	161.0	4.70	160.5	0.5	0.3
6	1005.0	5.80	193.0	5.80	198.0	0.0	0.0
7	1172.0	6.85	234.0	6.78	232.0	2.0	1.2
8	1340.0	7.82	267.0	7.68	263.0	4.0	1.5
9	1507.5	8.66	296.0	8.55	293.0	3.0	1.3
10	1675.0	9.36	320.0	9.25	316.0	4.0	1.3
11	1840.0	9.92	339.0	9.85	337.0	2.0	0.6
12	2010.0	10.25	351.0	10.35	353.0	2.0	0.6
12.75	2135.0	11.85	405.0	11.70	400.0	5.0	1.2

In considering these results, it must be remembered that 0.05 in. on the chart represents 16.75 lb. on the x axis or 3.4 per cent elongation; the maximum difference shown was, therefore, only about the width of the mark made by the tracing pen, and

Olsen Vertical Rubber Tester

that the recording device was very crude.

Integrating.

$$y = 0.65x + 2.86 \sin^2 9.1x$$

$$da = 0.65\int_{0}^{12.75} x\,dx + 2.86 \int_{0}^{12.75} \sin^2 9.1\,x\,dx$$

$$\text{Area} = \left[\frac{0.65x^2}{2} + \frac{2.86x}{2} - \frac{2.86 \sin 18.2x}{4 \times .18}\right]_{0}^{12.75}$$

$$= 69.06$$

$$\frac{69.06}{4} = 17.26 \text{ sq. in.}$$

The area obtained by means of the planimeter on this area is not available to the writer at present, but the two results differed by less than 0.1 sq. in.

The various relations between the areas of the various loops made by the initial and successive extensions and retractions should give a whole lot of very desirable information especially with regard to the resiliency of the stock and the rate of diminution of the same.

Beadle and Stevens have stated that the equation

$\frac{L_n - L_1}{\log n}$ expresses the relation of the elongation produced by successive extensions to the same stress. In this equation,

L_n = Elongation at the end of the n th cycle

L_1 = Elongation at the end of the first cycle

$\log n$ = log of the number of cycles.

The same relation may be obtained by plotting these results on logarithmic cross section paper, the result being a straight line. The slope of this line in a measure of the cyclic fatigue.

Instruments for measuring the abrasion of rubber have not as yet proved very successful. The general method is based on the principle of subjecting a weighed sample of rubber to the wearing action of a rotating wheel, having an emery or carborundum surface, either for a certain length of time or for a certain number of revolutions. The sample is then reweighed and thus the weight of the rubber worn away is ascertained. For purposes of comparison it is generally reported in volume loss which is obtained by dividing the weight lost by the specific gravity of the stock. This test is of value with sole stocks as it gives a means of comparing different compounds for wearing purposes. One of the difficulties to be overcome in this test is the manner in which the pressure of the rubber against the surface of the wheel is to be controlled and maintained constant. At present it is attempted to regulate the pressure by means of a dead weight or a lever. Although neither one is entirely satisfactory, yet if either is watched closely the conditions can be kept the same and therefore the results are comparable.

A test for the purpose of learning something of the susceptibility of rubber to puncture is carried out on a machine for measuring the force necessary to puncture the stock.

The instrument is similar to the one used for testing the hardness with the exception that the plunger carries a sharper point than the one used for gauging the hardness. The force necessary to cause the point to penetrate the rubber is read directly from a dial graduated in arbitrary divisions.

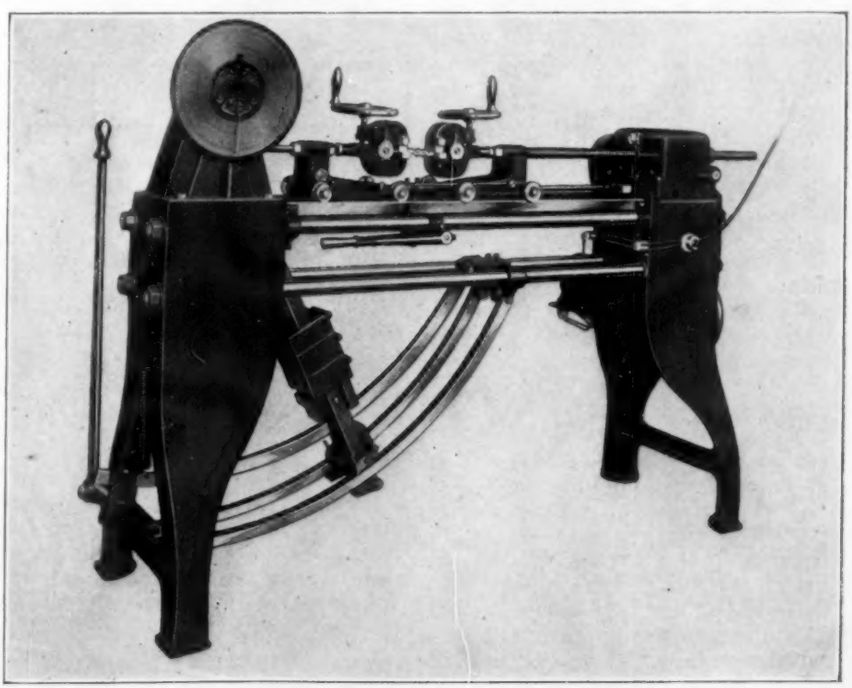
No test with any degree of satisfaction has been devised for determining the liability of a rubber to tear.

We will continue the Physical Testing of Rubber in our next section.

Litharge

Great improvements have been effected in the manufacture of litharge since the outbreak of the war. Prior to the war this material was known and used in three forms: ground litharge or massicot, made by oxidizing lead in reverberatory furnaces, grinding, washing and drying; flake litharge; and the German litharge obtained as a by-product from the manufacture of certain chemicals for the dye industry. The last name was considered far superior to the others.

Since the outbreak of the European war British, French and American manufacturers have developed litharge-making processes that produce qualities superior to the German product, possessing the highest degree of purity such as is required of litharge used in rubber proofing balloon fabrics and the like.



Scott Model Q Horizontal Testing Machine

Separation of Combined Sulphur in Reclaiming

By André Dubosc

Numerous patents have been taken from time to time for processes for separating combined sulphur in rubber reclaiming, but the problem of putting these processes on a manufacturing basis appears still to be unsolved.

Repony has taken up the study of this question and here are some of the results he has obtained:

It is known that vulcanized rubber is soluble in various substances, such as kerosene, etherated camphor oil, heavy coal tar oils, nitrobenzine, turpentine, salol, and that the speed of solution increased with the raising of the working temperature. At a temperature of 130 degrees C. solution takes place very slowly, at 190 degrees C., it is rapid, and at 200 degrees C. all the rubber is affected.

In these solutions, it appears that the chemical composition of the rubber is not affected, neither is its combination with the sulphur.

None of the above mentioned solvents absorb sulphur. Therefore, Repony made the following experiments:

1—A sample of ordinary reclaimed rubber stock was mixed with caustic soda and heated in an autoclave, where it was held for from 5 to 12 hours at a temperature of 170 degrees C.

2—Lead oxide was substituted for the caustic soda.

3—Acetate of lead was used.

4—Iron oxide was mixed with the rubber and heated as in the first experiment.

5—Automobile tire tread stocks, reduced to a fine powder form, was treated with linseed oil at a temperature of 180 degrees C.; the oil was saponified by using 30 per cent of caustic soda, which brought about a reprecipitation of the rubber.

None of these treatments removed the combined sulphur; only the free sulphur was taken away.

6—Samples of vulcanized rubber were submerged in coal oil and heated in an autoclave to a temperature of 150 degrees C. A solution was thus obtained which was reprecipitated with alcohol and it was found that rubber thus recovered had lost none of its combined sulphur.

7—The sixth experiment was repeated in the presence of metallic iron, and result obtained was no better.

8—Vulcanized rubber was dissolved in kerosene, then mixed with zinc powder and hydrochloric acid. When this mixture was shaken and boiled it gave off a large quantity of hydrosulphuric acid gas. By repeating the same experiment on vulcanized rubber that had previously been freed of white sulphur by an acetone treatment, the same result was obtained. The rubber was then precipitated with alcohol and analyzed. A certain amount of chlorine had taken the place of combined sulphur, but the rubber had been severely attacked by the acid and was useless as a reclaimed stock.

9—The same experiment was repeated with sulphuric acid and this time there was no formation of hydrosulphuric acid gas.

10—Oxalic acid was tried out without further success.

11—Diluted acetic and nitric acids were used and there was not a greater reaction, but rubber was turned into an oxidized power.

12—Next the action of a mixture of sodium and aluminum was tried with the same negative result.

13—The zinc powder experiment was repeated with no greater success.

14—In this experiment oxalates were substituted for the metals and again the combined sulphur was unaffected.

15—Vulcanized rubber was mixed on rolls with metal sodium; the reaction was so lively that the mass threatened to break into flames, nevertheless none of the combined sulphur was affected, which appears to contradict Spence's statements.

From all these experiments it appears that alone the action of zinc powder, in presence of hydrochloric can displace combined sulphur, but in doing so substitutes for it chlorine, or very probably hydrochloric acid, and the result is a hydrochlorate of rubber, which pulverizes itself and is absolutely useless as a reclaimed stock.

However, this reaction gives a valuable indication, which is that chlorine, under certain conditions, can substitute itself for sulphur in sulphocaoutchoric combinations. Therefore, sulphur can be eliminated, and this probably by all halogenes.

On another hand, we have done research work that enables us to affirm that, where organic materials have been used to facilitate vulcanization, the combined sulphur can be separated by treating the vulcanized rubber with solutions of the same organic materials at a suitable temperature.

The key to all these reactions seems to rest in the changes of state which the sulphur can and must go through during vulcanization, and especially in the number of valences the sulphur can have.

Very difficult with divalent sulphur; devulcanization is much easier with polyvalent sulphur.

The Rubber Age Trade Information Exchange

Inquiries on any rubber trade subject are solicited. Answers in many cases are sent by mail; others are printed below. Address all inquiries to Rubber Age Trade Information Exchange, 120 West 32d Street, New York.

Wants Plastometer

Inquiry No. 44.—Kindly tell us who manufactures the "Plastometer" mentioned in an article recently published in THE RUBBER AGE AND TIRE NEWS.

Answer.—The Plastometer, an instrument designed for measuring the elasticity and density of rubber and other plastic materials, is manufactured by the Pusey & Jones Co., Wilmington, Del. Its price is $125 f.o.b. Wilmington, Del.

Size of Cord Tires

Inquiry No. 45.—We make a special inner tube and have been having some trouble with it when used in cord tires. No such trouble is experienced where the tube is used in fabric tires. Can you suggest the cause of this trouble?

Answer.—Your trouble is no doubt due to the fact that cord tires are built on larger cores and have a larger inside diameter than fabric tires of corresponding size. You may be able to overcome the trouble by using tubes one size larger than the size of the cord casing.

Process for Reclaiming Balata and Fabric

Inquiry No. 46.—We have considerable quantities of material consisting of cotton fabric and balata, and we would like to reclaim both the fabric and the balata. Can you give us a process for doing this?

Answer.—We know of a number of processes for doing what you want to do but are not at liberty to give them to you. We do not know how successful these processes actually are, nor are we familiar with their relative merits. Perhaps some of our readers who see this will be willing to come forward and help you. In the meantime, however, you might do well to get into touch with Wilmer Dunbar, consulting rubber engineer, Greensburg, Pa., and Dr. Frederick J. Maywald, consulting chemist, 134 Front Street, New York.

W. D. MOFFAT
PRESIDENT

W. I. SEAMAN
TREASURER

GEORGE NEWBOLD
BUSINESS MANAGER

THE RUBBER AGE AND TIRE NEWS

H. M. WILLIAMS
EDITOR

W. M. MILNER
ASSOCIATE EDITOR

H. B. SEYMOUR
ADVERTISING MANAGER

Vol. III | June 25, 1918 | No. 6

GRIM war is rapidly extending its control of the leading industries of the country, and from present indications, before long it will be necessary to obtain a license from the Federal Government at Washington before it will be possible to carry on any manufacturing business of any kind.

Great strides already have been made in this direction. The War Industries Board now controls the distribution of iron and steel, and the War Trade Board, which works in close cooperation with the War Industries Board, now has what amounts to absolute jurisdiction over the rubber industry. Only a few weeks ago the control of crude rubber distribution passed into the hands of the War Trade Board and now this body is prohibiting the importation of manufactured rubber goods.

These measures are all inspired by the desire to provide more shipping space for war purposes and to prevent serious shortages in war essentials. The order prohibiting the importation of manufactured rubber goods will at the same time be beneficial to the rubber trade in that it will prevent the American market from being flooded with cheap rubber goods of inferior quality, which certain foreign manufacturers could sell in this country should the shortage of American goods become more acute and further increases in prices be rendered necessary.

This measure will not, however, be allowed to cause an advance in prices, for the Government has expressed its determination to prevent profiteering and has created its plans for administering the affairs of the trade.

Although the War Trade Board issues the orders, it is understood that it is really the War Industries Board that is directing matters. This feature of the Government control of the rubber industry was fully explained recently by Chairman Baruch, of the War Industries Board, before the Appropriations Committee of the House of Representatives. Upon that occasion Mr. Baruch said, in substance:

"The War Industries Board looks forward to the regulation of every industry in the country if such action becomes necessary through shortages in materials. One of the chief provinces of the Board is to prevent shortages—serious shortages in war essentials. There will be shortages, of course, and the Board will endeavor to cope with them promptly. At present there is under way the organization of the rubber industry, which is the fourth in size and importance among the manufactures of the country. It may be necessary to regulate the rubber industry, governing its production and its distribution of manufactured goods. Consider what an enormous amount of work will thus be placed upon the Board, the amount of detail; and consider the money requirements. I am trying to give you an idea of the work that confronts the War Industries Board."

It is evident that the rubber industry is in for a period of short rations and the situation promises to last until the end of the war at least, and very possibly for some time beyond. There is no reason to suppose that the United States is not going to have to endure conditions very similar to those that have been prevailing for some time in other belligerent countries. Many articles of rubber manufacture are probably going to be much scarcer than they are even now before adjustments are made.

Will Improve Statistics to Aid Trade

Revision and extension of the statistical classification of imports and exports has been undertaken by the Bureau of Foreign and Domestic Commerce, which invites trade organizations and individuals to transmit to it promptly any suggestions for improvement in the classification that will make the statistics more helpful for trade-promotion purposes. Recommendations for new classes not now shown separately, or for a more detailed subdivision of the present classification, as well as any suggestions regarding the form of publication, are welcomed, and will be carefully considered and adopted if practicable.

The classification of rubber goods imports and exports has been amplified from time to time in order to meet the increasing needs of commercial interests, but it no doubt would be to the advantage of the trade to have more details given in official statistics, which are still too general in their classification, though far more precise than the statistics given in the United States Census Reports. It would be advantageous to the rubber trade to have import and export statistics show separately the important items of rubber mechanical goods, such as hose, packing, belting, soles and heels, hard rubber goods, insulated wires and cables; to separately classify rubber cement, rubberized fabrics and garments. Automobile tires should be segregated from cycle and motor cycle tires. Solid rubber tires for motor trucks should be listed separately from solid rubber tires for other uses, and it would probably also be desirable to attempt to classify the various items of rubber sundries.

Though the immediate object of more detailed classification is to furnish accurate information for the use of the Tariff Commission, and the several war boards, it will be permanently useful in promoting foreign trade.

Happenings of Importance to the Trade

War Trade Board Further Fixes Prices—Rubber Goods Import Licenses Revoked—Rubber Sundries May Be Standardized—Crude Rubber Shrinkage Allowances—Employes and Production in Rubber Industry

Rubber Prices Fixed

Under date of May 29 the War Trade Board has issued another batch of fixed prices for the following grades of rubber:

Gutta Joolalong (Pontianak)—		
Palambang	per lb.	16c.
Banjermassin	"	15c.
Sarawak	"	14c.
Gutta Siak	"	28c. in bond.
Pressed Gutta Joolalong having approximately 40% of shrinkage loss	per lb.	25c.
Balata—		Per lb.
Prime Suriname—amber sheet		97c.
Fair average		95c.
Venezuelan block		71c.
Columbian block		61c.
Panama block		59c.

Other grades of Balata at their relative value, Gutta Percha Red dacassan, per lb., $3. All above prices c.i.f. New York.

While for all rubber free of allocation maximum prices are willingly paid and demand is exceeding the available supplies, there has some competition arisen between importers, for allocation rubber especially in the Plantation descriptions and shipments for September-November are offered from 10 to 12c below the maximum prices. Smoked sheets ribbed were quoted at 49c, 50s and first latex pale crepe could be done at 50½@51c a pound.

In the Para descriptions underselling for futures is not as keen as in the Plantation grades as the supplies in the Brazilians are of limited size. Spot and nearby Para up-river fine are held at the maximum price of 68c, and later shipments could possibly be done at 64c.

Revoke Import Licenses for Rubber Goods

All outstanding licenses for the importation of manufactured rubber goods have been revoked by the War Trade Board, in a new ruling (*W. T. B. R. 143*), as to ocean shipment after June 25, 1918. No licenses for the importation of manufactured rubber goods will be issued after that date.

This ruling applies to all manufactured goods wherein rubber is the principal constituent. Articles containing incidental small quantities of rubber, to an extent of not more than five per cent of the total weight of the article, may be exempted from the effect of this restriction.

To Standardize Rubber Sundries

At a recent meeting of the Rubber Sundries Division of the Rubber Association of America, held in New York, and well attended, a number of important reforms were discussed, and are now being voted on by mail.

Among other things, it is proposed that water bottles, now being made in hundreds of varieties, be reduced to eight styles, a color to constitute a style, and the 1-quart and 4-quart sizes to be eliminated. It is also proposed that low-priced water bottles be six in a box, the medium-priced ones three in a box, and that the high-priced bottles be packed in individual boxes, as is the practice for all bottles today.

Another proposal is that in surgical tubes and catheters all odd sizes from 8 to 28 inclusive be cut out.

It is also proposed to abandon the system of accepting orders in dozens and gross lots in favor of the decimal system in which orders are made in tens, hundreds and thousands. It is said that the decimal system would result in a substantial saving of time in billing and handling.

Crude Rubber Shrinkage Allowances

The War Trade Board has adopted the following schedule of shrinkage allowances on grades of Brazilian rubber.

Grade	Shrinkage Allowance
FINE PARA	
Upriver	25%
Maderia	25%
Manaos Weak	25%
Knapsack	25%
Peruvian Weak	25%
Mollendo	25%
Mattogrosso	25%
Islands	33 1-3%
Tapajos	25%
Upper Xingu	25%
Peruvian	25%
Cut Angostura	25%
MEDIUM PARA	
Upriver	25%
Peruvian	25%
Cut Angostura	25%
Coarse-Medium (Mixed Para)	25%
COARSE PARA	
Upriver	30%
Mattogrosso	30%
Islands	30%
Cameta	30%
Peruvian	30%
Mollendo	30%
Rio Negro Coarse	30%
Rio Negro Strings	35%
Nugget Coarse	30%
Angostura Coarse	30%
Tapajos Coarse	30%
Xingu Coarse	30%
Ceara Coarse (Negroheads)	30%
MISCELLANEOUS	
Manicoba 1	30%
Low Amazon Weak	25%
Ceara Scrap 1	30%
Pernambuco Sheet	35%
Mangabeira Sheet	35%
Upper Caucho Ball	25%
Caucho Tails	25%
Lower Amazon Ball	25%
Upper Caucho Slab	30%
Upper Xingu Ball	25%

There still appears to be some confusion on the part of a few manufacturers as to the basis on which these shrinkages are calculated.

In order to make the matter quite clear, the Committee on Rubber and Kindred Products of the Rubber Association of America, through its secretary, Harry S. Vorhis, advises the rubber industry that the War Trade Board predicates the shrinkage allowance upon the shipping weight of the rubber from Brazil, and not upon the landed weight of the same in New York. Therefore, the usual shrinkage in transit should be provided for in the shape of additional allocations where the landed weight called for is desired:

Example on Fine Para—A manufacturer furnishing allocation certificate for 7,500 pounds would be entitled to have 10,000 pounds shipped from Brazil; if he desired 10,000 pounds landed weight in New York, he should furnish additional allocation to his importer to take care of the transit shrinkage.

Crude Rubber Option Prices

The following option prices have been approved by the War Trade Board on the following two grades of rubber:

Knapsack Madeira Fine Para, 73c. per lb. c. i. f. New York.

Madeira Fine Para, 69c. per lb. c. i. f. New York.

Employes and Production

The War Service Committee of the Rubber Industry of the U. S. A. has now received answers from all of the principal rubber manufacturing companies to its Questionnaire No. 3, which was sent out to the trade last March, requesting that all companies give the maximum number of employes working in their plants at any period during 1917 and the aggregate value of their production during the same year.

These replies have now been tabulated by Irving B. Ferguson, C. P. A., 61 Broadway, New York, with the following results:

Number of companies replying, 452.

Total number of employes at their peak during the year 1917, 207,714.

Total value of production during the year 1917, $895,816,248.

Slight Decline in Rubber Imports

There was a decline of 2123 tons in crude rubber imports into the United States during the month of May, the total imports being 16,288 tons, as against 18,411 tons imported during May, 1917. A large portion of this rubber was shipped prior to May 8 and consequently did not come under the ruling of the War Trade Board limiting crude rubber imports to 25,000 tons during the period of three months starting May 6 and ending July 30. Therefore, if sufficient tonnage is available almost all of the 25,000 tons allowed by the War Trade Board will be imported during June and July.

Practically all of the 16,288 tons of crude rubber that entered this country during the month of May was free rubber.

Egyptian Cotton Import Licenses Revoked

All outstanding licenses for the importation of Egyptian cotton have been revoked by the War Trade Board as to shipments from abroad after June 20, 1918. Hereafter, licenses will only be issued under the following provisions.

1—No licenses shall be issued for the importation from Egypt to the United States of brown Egyptian and other low grade Egyptian cottons. The cottons covered by this provision include the grades known as Mit-Affi, Upper Egypt and other grades having a staple 1⅛ inches in length or less.

2—Sakellarides and other high grade Egyptian cottons commonly known as "Sakels," having a length of staple of 1½ inches or more, may be imported to the amount of 80,000 bales during the calendar year of 1918. Importations will be embargoed for the remainder of the calendar year, if at any time before December 31, 1918, imports of Egyptian cotton into the United States, shipped since January 1, 1918, shall have reached the total of 80,000 bales.

3—All cotton imported under this arrangement shall be controlled by the Textile Alliance, Inc., in advisement with the War Industries Board and the Department of Agriculture, and by them allocated to various manufacturers for use in the manufacture of necessary articles.

Goodyear Shows Free Movies

The Goodyear Tire & Rubber Co., Akron, Ohio, has inaugurated the practice of showing free moving pictures twice each week at the company's forty acre athletic ground, known as Seiberling Field. A good run of pictures is shown, including the best of the latest comedies. At the first show six reels were run, including pictures of the Goodyear cotton plantation in Arizona.

Doings of Rubber Men

Huetter, Vice-President of Premier Co.—Coffman Joins Kokomo—B. C. Swinehart with Hewitt—Babcox, President of A. B. C.—Ragsdale an Officer of Hunter Dry Kiln Co.—Other Personal News

Huetter, Vice-President of Premier Co.

A. Huetter, formerly superintendent of the Boonton Rubber Manufacturing Co., Boonton, N. J., and of the Bakelite department of the Dayton Engineering Laboratory Co., Dayton, Ohio, has been made vice-president and general manager of the Premier Rubber & Insulating Co., Dayton, Ohio, which was founded by him. The new concern is incorporated under the laws of the State of Ohio and has an authorized capital of $100,000, of which $60,000 is common stock and $40,000 preferred; it was organized in April and will specialize in moulded electrical insulations made both of hard rubber and condensation products. The plant, which is located in North Dayton, has been completed and consists of a one-story 60 by 100-ft. brick building, divided into three departments, as follows: a tool room, a hard rubber moulding and vulcanizing room, and a bakelite moulding shop.

The plant has its own power plant and has been in operation since May 1, working with night and day shifts. Its main hard rubber products at this time are battery jars and covers, distributors, and various insulations used on airplanes and automobiles. The Bakelite department is making all kinds of moulded insulations, especially complicated parts for starting, lighting and ignition systems for airplanes and automobiles.

A. B. Coffman Now with Kokomo

The Kokomo Rubber Co., Kokomo, Ind., has secured the services of A. B. Coffman, an experienced bicycle and motorcycle man, formerly connected with the Consolidated Manufacturing Co., Toledo, Ohio. Mr. Coffman will be identified with the sales promotion department of the Kokomo Company; he will call on the trade throughout the United States, and he will also establish agencies.

B. C. Swinehart Joins Hewitt

B. C. Swinehart has been appointed manager of the motor truck tire department of the Hewitt Rubber Co., Buffalo, N. Y.

Mr. Swinehart has been connected with the solid rubber tire industry for the past sixteen years. He comes to the Hewitt Rubber Co. from the Republic Rubber Corp., Youngstown, Ohio, with which he was connected during eight and a half years. Prior to his connection with the Republic company he was with the Swinehart Tire & Rubber Co., Akron, Ohio.

J. W. Sauter Manager of Goodrich Branch

John W. Sauter, who has for the past twelve years been associated in the sales organization of The B. F. Goodrich Company, has been made manager of the company's branch at 1414 North Third Street, Harrisburg, Pa. Mr. Sauter succeeds Wm. F. Mower, who is now in the Government service. Mr. Bender, who was in charge of the Goodrich Service Department, is also in the Government service.

Bullard Treasurer of Cotton Association

W. I. Bullard, assistant treasurer of the Goodyear Cotton Mills, Inc., Killingly, Conn., has been elected treasurer of the National Association of Cotton Manufacturers.

Annual Convention of the A. B. C.

The Audit Bureau of Circulations, better known as the A. B. C., held its annual convention last week in Chicago. This organization includes in its membership advertisers, advertising agencies and publishers. Its object is to investigate and test newspaper and magazine circulation just as bank examiners investigate the solvency and soundness of national banks. This service gives advertisers accurate, impartial information for their guidance in placing advertising. To advertisers it means what Dun and Bradstreet mean to credit men. Edward S. Babcox, vice-president of the Association of National Advertisers, and advertising manager of the Firestone Tire & Rubber Co., Akron, Ohio, was unanimously elected president of the Audit Bureau of Circulations for the ensuing year. In this connection it is interesting to note that the RUBBER AGE AND TIRE NEWS is the only rubber publication that is a member of the A. B. C.

EDWARD S. BABCOX

Ragsdale an Officer of Hunter Dry Kiln Co.

Oren M. Ragsdale, who has gained a wide acquaintance among rubber manufacturers as sales manager of the Hunter Dry Kiln Co., Indianapolis, Ind., has been elected secretary and treasurer of that concern.

Mr. Ragsdale, prior to his connection with the Hunter Dry Kiln Co., was well known in Indiana business circles, having been actively engaged since his graduation from Yale in 1907 in the investment security business. He was president of the Indianapolis Stock Exchange in 1914.

Moller Resigns

Kenneth Moller has resigned his position with the William Whitman Co., Inc., Boston, Mass., to enter the service of the United States Government.

Burrell with Foster Rubber Co.

W. M. Burrell, who for years has been known in railroad circles in New England, is now associated with the Foster Rubber Company of Boston.

Jepson Goes with Hurlburt

Frank Jepson, formerly manager of sales promotion at the New York branch of the Firestone Tire & Rubber Co., has accepted the position of assistant sales manager of the Hurlburt Motor Truck Co., New York, where he will be in charge of retail sales and sales promotion. Mr. Jepson, though comparatively a newcomer in the automobile field, has risen rapidly and will prove a valuable acquisition to the manufacturers of Hurlburt worm-drive motor trucks.

A. C. Hulshizer Dies

A. C. Hulshizer, vice-president and general manager of the Cleveland Tire and Rubber Company, 677 North Broad Street, Philadelphia, Pa., died recently at his home in Haddonfield, N. J., after a brief illness.

Mr. Hulshizer had been in the tire business for several years and had made remarkable progress in building up a large trade. He had recently been appointed general manager of the new Philadelphia branch of the Gillette Rubber Company.

C. R. Sargent Returns from Trip

Charles R. Sargent, vice-president of Stresen-Reuter and Hancock, Inc., Cleveland, Ohio, has returned from an extended automobile trip through Canada. He reports that business conditions are very good in Canada and that customers of his firm in the Dominion are looking forward to a prosperous period.

Warford Enters Service

L. E. Warford, for two years advertising manager of the Seattle, Wash., branch of the B. F. Goodrich Company, has left for Berkeley, Cal., where he entered the U. S. School of Military Aeronautics.

Bloomer a Republic Manager

The Republic Rubber Corporation, Youngstown, Ohio, announces the appointment of W. S. Bloomer as manager of the mechanical rubber goods division of its Kansas City branch. Mr. Bloomer will have charge of the sale of Republic rubber goods in the territory adjacent to Kansas City.

Gillette Appoints Advertising Agent

The Gillette Rubber Co., Eau Claire, Wis., maker of Gillette tires and tubes, has placed its advertising in the hands of the Ostenrieder Advertising Corp., Chicago, Ill.

Signorelli with Foundation Company

V. F. Signorelli, well known to the rubber trade as secretary and treasurer of the Southwark Foundry & Machine Co., Philadelphia, Pa., is now office manager and auditor of the Foundation Co., Carpenter-Watkins, Inc., Brunswick, Ga.

D. N. Mason Made Vice-President

At a recent meeting of the Board of Directors of the Mason Tire and Rubber Co., Kent, Ohio, D. N. Mason was elected vice-president, the action being taken in recognition of Mr. Mason's tireless work for the company since its organization.

Apsley Declares Dividend

An annual dividend of 3½ per cent on the preferred stock, payable July 1 to stockholders of record June 30 has been declared by Apsley Rubber Company.

Goodrich Employe Killed Fighting

Cpl. Milton Scarborough of Childs, Md., has been killed in the recent fighting on the western front.

Rubber Trade News Items

Fourth Chemical Industries Exposition—Rubber Growers' Association Annual Meeting—A. N. A. Semi-Annual Convention—United Shoe Machinery Wins Case—Devine Issues New Bulletin

Fourth Chemical Industries Exposition

The Fourth National Exposition of Chemical Industries will be held in the Grand Central Palace, New York City, during the week beginning Sept. 23. The advisory committee is composed of Charles H. Herty, chairman; Raymond F. Bacon, L. H. Baekeland, Ellwood Hendrick, Henry B. Faber, Bernard C. Hesse, A. D. Little, Wm. H. Nichols, R. P. Perry, H. C. Parmelee, G. W. Thompson, F. J. Tone, T. B. Wagner and M. C. Whitaker. Dr. Bacon of this committee is now head of the Chemical Warfare Section of the National Army and a member of General Pershing's staff.

The coming exposition will be the largest Chemical Exposition ever held and it will be necessary to use four floors of the Grand Central Palace. The exposition is a war-time necessity and regarding it as such each exhibitor is planning his exhibit so that it will be of the greatest benefit to the country through the men who visit it, all of whom are bent upon a serious purpose—that of producing war materials in large quantities, and constantly increasing this production till the war has been won by the United States and its allies.

The amount of floor space already engaged is greater than last year so the managers say, the exhibits will be much more attractive and a movement is under way to show all exhibits of machinery in operation under actual working conditions as they would be found in the field. The products of the chemicals manufactured and as they enter into the world's commerce will be there as examples of what the chemist has produced in America since the world war began.

The South is again sending exhibits from some sections, and Canada too is taking the opportunity of presenting the materials it has available for development by the chemist and financier. A section for the Glass and Ceramic Industry has been added with which the American Ceramic Society is co-operating.

The program for the exposition is said to be in active preparation and will be a series of symposiums on the "Development of Chemical Industries in the United States—notably since July, 1914." This will embrace the period since the beginning of the European war, which because of its removing the source of supply for our domestic industries inspired the development of our own chemical industries that, now, when we ourselves have entered the war, are proving so efficient.

The program of motion pictures carries forward the idea of the symposiums, and pictures will be shown of the industries that have developed in so far as they can be with propriety.

Hundreds of Women Now at Goodyear

Twenty-five hundred women are employed in the various departments of the Goodyear Tire & Rubber Co. plant at Akron. Women build tires, make inner tubes, gas masks, and perform nearly all the work that men are able to do.

Many women are working on trucks. The loads on these trucks are not heavy.

According to factory officials, who opened the factory to women labor, the plan has met with success.

Rubber Growers' Association's Report

The ninth annual report of the Rubber Growers' Association shows that the membership of that organization has grown to 833, consisting of 535 companies and 298 individuals, a total increase in membership of 66 since the last report, of which 46 are companies and 20 individuals.

Statistics of the companies represented by the Association are estimated as follows:

No.	Companies operating in	Authorized capital. £	Issued capital. £
297	Malaya	27,872,904	23,375,909
92	Ceylon	15,002,261	12,601,972
37	Sumatra	6,647,166	5,254,249
36	Java	5,795,333	4,721,199
24	S. India & Burma	2,253,983	1,890,277
22	Borneo	2,850,000	2,161,497
6	Other countries..	284,000	284,000
514		60,705,647	50,289,103
9	Trust Companies.	4,452,260	2,631,067
523		65,157,907	52,920,170

There are also twelve company members now owning rubber estates, and the acreage owned is 2,614,904, of which 904,277 acres are under rubber.

Sir John Anderson was elected chairman of the Association.

A. N. A. Holds Semi-Annual Convention

The Association of National Advertisers, of which Edward S. Babcox, advertising manager of the Firestone Tire & Rubber Co., Akron, Ohio, is vice-president, held its semi-annual convention last week in Chicago. Among the questions considered were the expansion of our foreign trade and the necessity of advertising during the war to protect good will.

United Shoe Machinery Wins

Declaring "the idea repellent that so complete an instrumentality should be dismantled and its concentration and efficiency lost," the United States Supreme Court has refused to order the dissolution of the United Shoe Machinery Co., of Massachussetts, and its subsidiary companies, grouped under the heading "Shoe Machinery Trust." Denying the Government's contention that the leasing arrangements which this company has perfected for selling its products or that the agreement with its subsidiaries as to its course of action was in any way harmful, the majority opinion of the Court pointed out that the company's size was a direct result as well as a cause of its efficiency. Benefits secured are passed on to users, according to the opinion, and this, together with the advance in the art which has been made, the difficulty and injustice of breaking up large units into small ones and preserving their value at the same time, rendered a verdict in favor of the company the only just one in the minds of four of the seven justices sitting.

J. P. Devine Bulletin Interesting

The J. P. Devine Co., Buffalo, N. Y., is now distributing its Bulletin No. 105-A, which is descriptive of equipment required for the chemical, color, dyestuff and allied industries. This bulletin is profusely illustrated and describes in detail the various types of equipment extensively used in the chemical industry, such as high and low pressure cast steel autoclave, nitrating kettles, reduction kettles, sulphonating kettles, fusion kettles, color kettles, tilting kettles, chemical kettles, jacketed pans, crystalizing pans, vacuum pans, vacuum evaporators, rotary autoclaves, carbonators, extractors, phenol stills, beta naphtol stills, rectifying apparatus, distilling apparatus, digestors, dry vacuum pumps, vacuum drying apparatus, of the chamber, rotary and drum types.

Building Activities in Rubber Circles

Faber to Erect Addition to Plant—Ross-Lambert Planning Factory—American Mills Award Contract—Mount Vernon-Woodbury to Enlarge Plant—National Aniline & Chemical Building

Faber to Erect Addition

The Eberhard Faber Pencil Co., 39 Greenpoint Avenue, Brooklyn, N. Y., manufacturer of stationery supplies and rubber goods, has awarded the contract for a one-story, 70 x 190 ft. brick addition to be erected on Franklin Street, Brooklyn, at a cost of $18,000.

Ross-Lambert Planning Factory

The Ross-Lambert Rubber Co., Cincinnati, Ohio, is planning to erect a three-story 75 x 600-ft. factory in that city. C. F. Ross, Hotel Metropole, Cincinnati, Ohio, is president of the company.

Doss Opens Branch

Branch offices of the Doss Rubber & Tube Co., Atlanta, Ga., have been opened in Macon, Ga., by J. H. Gautier at the Georgia Casualty Building, representative of the corporation.

American Mills Award Building Contract

The American Mills Co., 313 Mill Street, Waterbury, Conn., manufacturer of elastic fabrics, has awarded the contract for the construction of a 1-story, 60 x 98 ft., addition to its plant, to cost $10,000.

Mt. Vernon Woodberry Plans Addition

The Mt. Vernon Woodberry Mills, Inc., 506 Continental Building, Baltimore, Md., manufacturers of cotton duck, has had plans prepared for an addition to its plant. J. E. Sperry, architect, 408 Calvert Building, Baltimore, Md., is receiving bids, and it is estimated that the improvement will cost $50,000.

National Aniline Building

The National Aniline & Chemical Co., 244 Madison Avenue, New York, manufacturers of paraphenylenediamine, thiocarbanilide, and aniline oil accelerators for the rubber trade, has had plans prepared for the construction of a 3-story machine shop to be erected in Buffalo, N. Y., and to cost $85,000.

This concern is also receiving bids at its Buffalo offices, at 354 Abbott Road, for the construction of a 6-story, 50 x 100 ft., addition to its factory. T. H. McKaig is the architect and it is estimated that the work will cost $300,000.

Maguire Rubber Company Moves

The general offices of the Maguire Rubber Co. have been removed from 30 Church Street to 200 Fifth Avenue, New York City.

Manufacturing Companies Expanding

J. E. Thropp Plan New Plant—De Silva Plant Sold—Elmira Enlarging Plant—Delion to Make Additions—Kelly-Springfield to Build Million-Dollar Plant—Other Factory Expansion Activities—New Miller Line

John E. Thropp's Sons Plan New Plant

John E. Thropp's Sons Co., builders of rubber working machinery, Lewis Street, Trenton, N. J., is having plans prepared by J. O. Hunt, architect, 114 North Montgomery Street, Trenton, N. J., and will soon receive bids for the construction of a foundry and iron plant to be erected along the Delaware River. Estimated cost, $100,000.

De Silva Company Sold

The Bull's Eye Rubber Company has bought the plant and business of the De Silva Rubber Company, Inc., and is now at 131 Harris Avenue, Long Island City. L. Emden is president, C. H. Squires, vice-president, and A. C. Squiers, secretary and treasurer.

Triple Airless Tire to Build

The Triple Airless Tire Co., Manorville, Pa., will soon receive bids for a plant, according to a report from that city.

Elmira Rubber Adding to Plant

The Elmira Rubber Co., Elmira, Ont., Canada, soon expects to start building a 1-story addition to its plant, to cost $30,000. A. Steen is superintendent of the Elmira Rubber Co.

Chemical Company to Remodel Plant

The Trans-Atlantic Chemical Co., Linden, N. J., is planning to award the contract for the remodeling of its present factory building and erecting two new factories.

Delion Increases Capital

The Delion Tire & Rubber Co., Trenton, N. J., has increased its capital from $3,500,000 to $4,000,000 and plans to build additions to its plant.

The Great Republic to Build in Texas

The Great Republic Tire and Rubber Manufacturing Company, Oklahoma City, Okla., has under consideration the construction of a plant at San Angelo, Tex., for manufacturing automobile tires and tubes. It contemplates an investment of about $225,000 in buildings and equipment.

Kelly-Springfield Building in Maryland

The Kelly-Springfield Tire Co., Cook Street, Akron, Ohio, is building a three-story plant for the manufacture of automobile tires in Cumberland, Md. It is estimated that this new plant will cost $1,000,000.

Survey for Lambert Factory

The work of surveying the forty-acre lot in East Peoria, Ill., on which the new Lambert Multiplus Rubber Company, manufacturers of the trubulpruf tire and other rubber accessories, will soon be erected has been started. W. H. Brink of St. Paul, is the engineer and has supervised the work.

Overland Tire Buys Property

Five acres of land in Omaha, Neb., has been purchased by the Overland Tire and Rubber Company, as a site for its plant. The company also obtained an option on twelve acres adjoining.

Barker Awards Contract for Factory

The Barker Cushion Tire & Rubber Co., South Park Avenue, Chicago, Ill., has awarded the contract for a 2-story, 50x125 ft., plant to be erected on South Park Ave. and 81st St., Chicago, Ill.

Sandusky Planning Factory

The Sandusky Rubber & Tire Co., Sandusky, Ohio, is reported to be planning to spend $60,000 on the erection of a rubber manufacturing plant in that city.

Kansas City Tire Opens New Offices

L. J. Smith, president and treasurer of the Kansas City Tire & Rubber Corporation, announces that this concern has opened general offices at 1015 Commerce Building, Kansas City, Mo.

Giant Tire Rebuilding

The Giant Tire & Rubber Co., Findlay, Ohio, manufacturers of "Grant" tires and inner tubes, is rebuilding its plant on Western and Lima Avenues, that city, which was recently destroyed by fire.

Marathon Completes Addition

The Marathon Tire & Rubber Co., Cuyahoga Falls, Ohio, has completed an addition to its factory of a large molded goods and specialty department. In addition to rubber specialties the company is now making large quantities of heels and soles.

American Tire Filler Acquires Plant

The American Tire Filler Co., Kent, Wash., has purchased the plant of the Simplex Bed Co. in that city, and will there install machinery for the manufacture of rubber and composition fillers for automobile tires and mattresses. R. S. Wicks, Mount Vernon, Wash., is president of this company.

Brunswick-Balke-Collender Addition

The Brunswick-Balke-Collender Co., 620 South Wabash Avenue, Muskegon, Mich., has awarded the contract for a two-story, 85 x 115 ft. addition to its plant in that city for the manufacture of automobile tires.

Planning Tire Factory for Texas

The Southland Tire & Rubber Co., 303 Brady Building, San Antonio, Texas., recently organized, plans to build a plant for the manufacture of automobile tire casings, inner tubes and other rubber goods. It is expected that the factory will be located in Fort Worth, Texas., and will cost approximately $50,000.

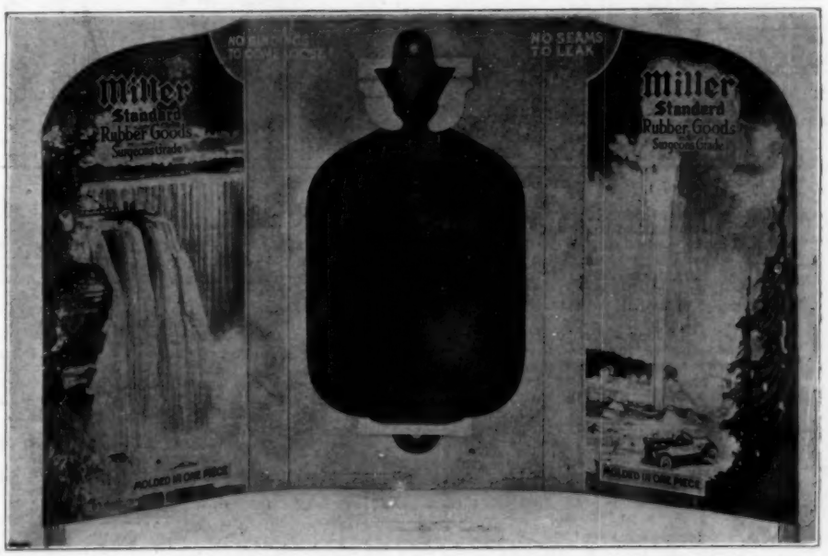
The Miller "Black Beauty" Line

The Miller Rubber Co., Akron, Ohio, reports great success in the marketing of the "Black Beauty" hot water bottle and combination fountain syringe, which were brought out several months ago and have been advertised extensively. This is a high quality line of goods, as demonstrated by test during which the "Black Beauty" water bottles have withstood water pressure in excess of 2116 pounds.

The "Black Beauty" line goods are of the one-piece molded type, without seams or bindings, and has an exclusive feature in the Miller "C-Kure-Nek," a construction in which the thimble is imbedded in thick solid rubber before the bottle is vulcanized, instead of being cemented into place after vulcanization of the bottle, as is often the practice.

Another feature of the "Black Beauty" line is the unique way in which it is packed and shipped. The carton is demountable and when opened its interior forms a suitable display board, of which the bottle occupies the center panel. On the wings, on either side of the bottle, are lithographic prints showing the Old Faithful geyser in Yellowstone Park and Niagara Falls.

The Miller carton is a valuable new idea in packing hot water bottles and similar articles. Besides affording a fine display card to the retailer it saves a lot of space to the manufacturer, it being possible to keep the cartons in the flat until needed instead of having to store the complete carton, which would occupy about six times as much space.



BLACK BEAUTY WATER BOTTLE IN DISPLAY CARTON

American Rubber Patents

ISSUED MAY 14, 1918

1,265,773—To Jorge Guerrero, Paris, France. Tire for vehicle wheels.

1,265,787—To Clarence S. Johnston, Glendive, Mont. Demountable rim.

1,265,855—To Charles E. Wood, Charleston, W. Va. Plastic composition.

1,265,950—To Elijah R. Parker, Rifle, Colo. Antiskidding device.

1,265,951—To Louis H. Perlman, New York, N. Y. Wheel.

1,266,054—To James V. Royal, Wollaston, Mass., assignor of one-half to John L. Layne, Boston, Mass. Protective armor for pneumatic tires.

1,266,064—To James J. Sexton, Columbus, Ohio. Pneumatic tire.

1,267,088—To Major A. Lane, Paola, Kan. Automobile-tire pump.

1,267,112—To Louis H. Perlman, New York. Demountable rim.

1,267,147—To William F. Troast, Lancaster, Pa., assignor of one-half to Frank B. Teout, Lancaster, Pa. Vehicle-wheel tire.

1,267,219—To Takaji Hattori, Fellows, Cal. Traction-tire.

1,267,227—To Charles M. Jones, North Yakima, Wash. Tire-carrier.

1,267,228—To Charles M. Jones, North Yakima, Wash. Tire-carrier.

1,267,230—To Ivan Nair Keim, Mount Holly, N. J. Resilient vehicle-tire.

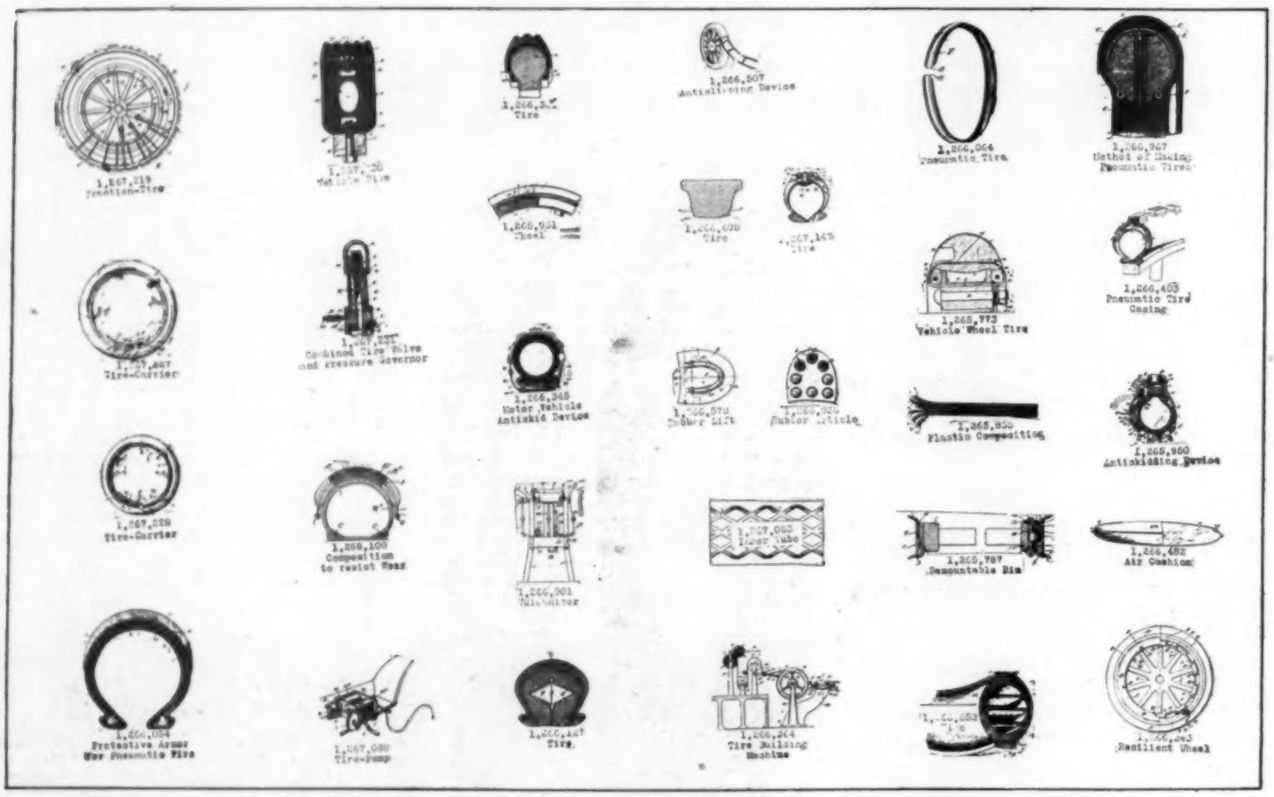
1,267,231—To Louis K. Kerndl, Lansing, Mich. Combined tire-valve and pressure governor.

Recent awards made by the Purchasing Department of the General Engineering Depot include—Cincinnati Rubber Manufacturing Co., Cincinnati, Ohio, garden hose; Boston Woven Hose and Rubber Co., Cambridge, Mass., insulating tape; Emanuel Baumgarten, and Lamb and Tilden, both of Washington, D. C., rubber stamps; B. F. Goodrich Rubber Co., Akron, Ohio, suction hose; Goodyear Tire and Rubber Co., Washington, D. C., auto repair supplies; National Electric Supply Co., Washington, D. C., vulcanizers, etc.; United States Tire Co., Washington, D. C., reliners, breakers, etc.; Bowers Rubber Works, San Francisco, Cal., fire hose; R. and J. Dick, Ltd., Passaic, N. J., balata belting; Acme Rubber Manufacturing Co., Trenton, N. J., fire hose; Boston Woven Hose and Rubber Co., Cambridge, Mass., fire hose, etc.

Purchasing orders recently made by the Quartermaster's Department of the Army include hose washers from the Acme Rubber Co., Trenton, N. J.

The Bureau of Supplies and Accounts, Washington, D. C., has placed an order for $46,000 worth of flax packing for the navy. The contract went to the Belmont Packing & Rubber Co., Philadelphia, Pa.

By the Finance and Supply Division of the Army Medical Corps—Faultless Rubber Co., Ashland, Ohio, rubber tubing and clarifying tubes; American Hard Rubber Co., New York City, spatulas; B. F. Goodrich Rubber Co., Akron, Ohio, hose; Luzerne Manufacturing Co., Trenton, N. J., rubber castings; Tyer Rubber Co., Andover, Mass., rubber bags, and Archer Rubber Co., Milford, Mass., rubber sheeting.



1,266,100—To Harold P. Brown, New York, N. Y. Composition to resist wear and antiskid device embodying the same.

1,266,127—To George Lennon Kavanagh, Montreal, Quebec, Canada. Tire.

1,266,343—To John Stuart, St. Kilda, Melbourne, Victoria, Australia. Resilient wheel.

1,266,345—To Luther R. Swope, Hanover, Pa. Antiskid device for motor vehicles.

1,266,361—To Herbert N. Wayne, Los Angeles, Cal. Tire.

1,266,364—To Marion B. Wheeler, New York, N. Y. Tire building machine.

1,266,403—To Arthur Cartheuser, West Orange, N. J. Pneumatic-tire casing.

1,266,482—To Harris Kamrass, New York, N. Y. Air cushion.

1,266,507—To Edmund B. Ludwig, Kansas City, Mo. Device for applying antiskidding chains to pneumatic tires.

ISSUED MAY 21, 1918

1,266,578—To Thomas A. Gambing, Boston, Mass., assignor to United Lace & Braid Mfg. Co., a corporation of Rhode Island. Rubber lift for boots and shoes.

1,266,698—To Colin Macbeth, Birmingham, Eng., assignor to The Dunlop Rubber Co., Ltd., Westminster, England. Tire.

1,266,852—To John W. Pepple, San Antonio, Tex. Vehicle tires.

1,266,901—To Newton M. Anderson, Worthington, Ind., assignor of one-half to William T. Jean, Worthington, Ind. Vulcanizer.

1,266,936—To Samuel J. Harris and Allan A. Harris, Randolph, Mass. Rubber article.

1,266,967—To Nelson W. McLeod, St. Louis, Mo. Method of making pneumatic tires.

1,267,063—To Cecil H. Duckett and Charles J. Fitzpatrick, Washington, D. C. Inner tube.

Incorporations

Racing Tire Delivery Co., Inc., New York, N. Y.; capital, $1,000; to do a general trucking, carting and delivery business and selling rubber tires.

Liberty Sole & Tire Co., Dover, Del.; capital, $250,000; to manufacture and sell fiber soles, tires and rubber articles; capital, $250,000; incorporators: K. W. Brier and James J. Crawford, Vincennes, Ind.

Rubber Substitution Corporation of America, Dover, Del.; capital, $500,000; incorporators: A. W. Britton, Paul S. Smith and William A. Regan, all of New York.

American Rim, Tire & Rubber Co.; capital, $500,000; to manufacture, sell, trade and deal in rims and tires; incorporators: C. L. Rimlinger, M. M. Clancy and F. A. Armstrong, all of Wilmington, Del.

Armocord Tire & Rubber Co., Dover, Del.; capital, $100,000; to manufacture rubber goods of all kinds, including tires and tubes; incorporators: Ferris Giles, E. M. Haslan and C. N. Ryan, all of Wilmington, Del.

Lesser & Stenge, New York, N. Y.; capital, $100,000; to manufacture rain coats; incorporators: C. Josephson, H. Stenge and M. Lesser, all of 215 West 98th Street.

Republic Distributing Co., San Francisco, Cal.; capital, $25,000; to deal in all kinds of rubber goods; incorporators: Harry Lesser, J. B. Howell and J. P. Costell, all of San Francisco.

Government Purchases Rubber Goods

Contracts for rubber goods were recently placed by the Government:

TIRE NEWS

Getting Miles Out of Tires

By Herbert E. Fry

The greatest difficulty experienced by tire dealers in their business undoubtedly is the question of adjustments, and this difficulty is largely due to the dealer's own attitude in selling tires. Tires, like other items of merchandise, will usually stay sold if they are sold as they should be sold.

The great cause of trouble lies in the fact that the dealer in too many cases neglects to educate the user to tell the difference between good tires and bad tires. Dealers too frequently make extravagant promises of mileage to be obtained from the tires they sell, and, naturally, they suffer from the "come-back."

Another factor which most dealers sadly neglect is the matter of the conditions under which tires can be expected to deliver the mileage built into them by their manufacturers. The average user does not use the common sense in connection with his tires that he would in the case of a pair of shoes, for instance. If a man buys a pair of walking shoes and uses them to play football, and they go to pieces in a few days, he does not think of complaining. He realizes that the use he made of the shoes was not a legitimate one, and that it was this abuse that ruined the shoes. On the other hand, this same man usually pays no attention to the way he abuses his tires, because he does not realize the mistreatment he is giving them.

The necessity for making adjustments has a cause, and the dealer should do all in his power to eliminate this cause. The user will not usually realize the cause himself; he recognizes only the effect. If the dealer promises him that he will get 6000 miles out of his tires and he only gets 3000, he places the blame on the manufacturer and gives no heed to the manner by which he probably misused the tires.

If the dealer wants his tires to stay sold, he can do nothing better than to point out and make clear to his customers the things that prevent tires from delivering the mileage built into them. With tire prices at their present level, the average user will be found to be in a recipient mood when the causes of tire damage are pointed out and explained to him. The dealer will find it an easy task

TIRES DAMAGED BY SKIDDING AND BY CHAINS

to get the user's co-operation, and he will help to save some of the millions of dollars that are wasted unconsciously each year in tires that are ruined before they have delivered their mileage. Of the tires sold, fully 99 per cent are short-lived, not because of any fault of the manufacturer, but because of absolute neglect and carelessness on the part of users who are unconscious of their mistakes. Of course, a tire that is not quite up to standard will from time to time get out of the factory, but in such cases there is seldom trouble, for the manufacturer almost invariably makes good.

It can truthfully be said that, leaving aside "seconds," ninety-nine per cent of the tires that are shipped from the factories are perfect. Yet some motorists get from 8000 to 10,000 miles of service, and some only 3000. The owners of tires which have run from 8000 to 10,000 miles invariably will attribute this good service to two things: a good make of tire and proper care.

Since 99 per cent of the tires are perfect in workmanship and materials, and since many motorists receive satisfactory mileage, it is reasonable to believe that all motorists should receive the same satisfactory mileage. In other words, where good tires are used, care is a governing factor in mileage, and proper care, knowing "how," is what gives the tire longevity.

The following suggestions may help to cut down tire bills by adding to tire mileage:

Inflation

Manufacturers vary as to the air pressure to be maintained in their tires, and even if the required pressure is not stamped on the side of the tire, the dealer should tell his customers what pressure is recommended by the manufacturer. On the whole, the following schedule is safe to follow: 3" tire, 60 pounds; 3½" tire, 70 pounds; 4" tire, 80 pounds; 4½" tire, 90 pounds; 5" tire, 95 pounds; 5½" tire, 100 pounds; and the wise motorist always tests his tires before leaving the garage.

The most serious mistake made by the average motorist in regard to the inflation of his tires is in reducing the pressure in hot weather to allow for heat expansion. While this expansion may be true, still it is not great enough to do any harm. The car will naturally ride a bit hard, but not uncomfortably. The user should always be reminded that it is underinflation and not overinflation that destroys tires. As one reduces the air pressure below the recommended amount, one places tires in danger of being ruined beyond repair.

An underinflated tire under a load will flatten out, causing the side walls to bend up and down as the wheel revolves. This flexing generates a severe heat, which chafes through the first ply of fabric, then the next ply, and so on until a blowout occurs.

Tires should be kept inflated up to the recommended pressure summer or winter, whether the temperature is 90° or zero, as nothing has so much bearing on long tire service as proper inflation.

Broken Fabric

The so-called "stone bruise," which is a common term for broken fabric, is a condition hard for the motorist to understand.

To prevent "stone bruises," the dealer should warn his customers to watch for stones or other obstructions in the roadway and to avoid them, avoid ruts, drive slowly when crossing car tracks, and be sure not to bump into curb stones, especially with underinflated tires.

When a tire has been injured in this way it should be repaired immediately. A blowout patch should never be used—it will only aggravate the injury. If the bruised tire is properly repaired it will run for a good many miles more.

When the fabric has been bruised, this never shows on the outside of the tire, for the reason that the tread rubber is tough and resilient and absorbs the blow, while the fabric breaks at the point where the blow is received. The final blowout may not occur until perhaps 50, 75 or 100 miles have been run after the tire has received the original blow, and the car may be riding on a perfectly smooth road when the blowout comes.

All pneumatic tires are susceptible to fabric breaks, but care in driving and proper inflation will prevent most cases.

Torn Tread

When the tread of a tire appears to be wearing in places and tearing away from the fabric, it is due to one or more of the following conditions: 1, sudden stopping and starting; 2, improperly adjusted brakes; 3, making turns at high speed, causing the tire to skid.

To prevent this unnecessary wear, the brakes should be properly adjusted so that they grip the brake drums evenly. Brakes should not be applied too suddenly; in starting, one should not allow the wheels to spin. Skidding is always to be avoided as much as possible.

Unusual Tread Wear

When tires are used on wheels that do not run parallel to each other they are forced to undergo a diagonal grind, which causes the tread to wear off faster than it usually will.

This condition can be brought about by the steering rod or axle being bent, by poor or loose bearings, by a demountable rim that is not fitted right or is loose. A wheel may be thrown out of alignment by striking a curb at an angle or dropping into a rut that is avoided by the opposite wheel. All of these small accidents, while they often pass unnoticed, are sufficient to cause the injury to wheels that will result in abnormal tire tread wear.

Chains are known to be the best anti-skid device that can be used, but rubber and metal do not work well together. When applying chains it is essential that they be applied loose, so that as the wheel revolves the cross links will not stay at the same point and gouge out the rubber.

Tires when exposed to light and heat will lose their "liveliness"; they will crack and harden, and will become unfit for use. Experience has showed, however, that age does not affect tires when they are properly stored in a dark, cool and dry place. When an extra tire is carried on the car it should be covered, in order to keep out the sunlight and water. If the car is not used in the winter, the tires should be taken off, wrapped up and carefully stored. Likewise, the tubes after the air has been taken out of them should be properly folded, placed in a box and dusted with tire talc.

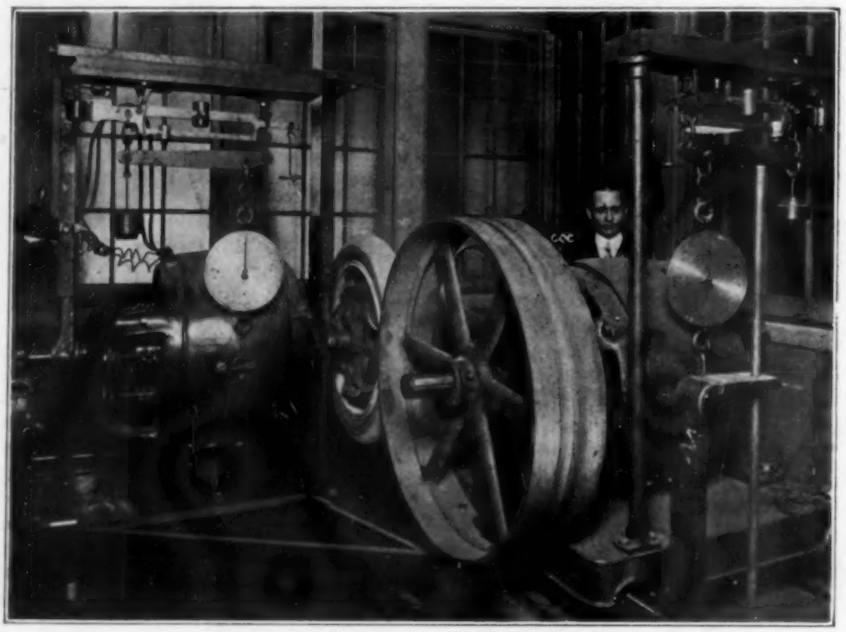
Nine out of ten tires that come back for adjustment show evidence of rank abuse, indicating that dealers can do good work by educating their customers to be more considerate of their tires. The best means of doing this is to point out and emphasize the causes of tire damages.

Dynamometer Tests for Tires

Were an automobile permitted to coast down a hill, it would finally stop when it reached the level for two reasons: friction losses in the bearings; power losses in the tires.

The average motorist pays little attention to power loss due to tire equipment, taking it for granted that the loss is so small as to be unimportant. The Firestone Tire and Rubber Company, Akron, Ohio, however, has been devoting much money and brains to the study of power loss in tires, and has lately perfected a dynamometer, which is said to enable engineers to determine exactly the amount of power required to move a tire and to keep it going. A tire placed on the Firestone dynamometer is said to go through the same kind of test as though it were on the wheel of a motor car running on the road.

In the dynamometer test, the tire is placed on a wheel, which is revolved by an electric motor, and its tread rests on a fly-wheel or drum, which in turn is connected to an electric generator. There is a gage on the motor which registers the amount of power required to revolve the tire, while the generator is provided with another gage which measures the power delivered by the tire. The difference between the amount of power put into the tire to move it, and the amount delivered to the generator by the tire, shows the power loss in the tire.



FIRESTONE TIRE TESTING DYNAMOMETER

The dynamometer is provided with devices for equalizing all friction so that the exact amount of power lost in driving the tire is registered.

News of Interest to the Tire Trade

Advance in Tire Equipment Prices—Amazon's Help to Dealers—United Motors Co. Withdraws Suit Against Keystone—New Distributor for J. & D. Tires—Clough with Mason—Keystone Takes Gryphon Output—C. J. Welch Promoted

Advance in Tire Equipment Prices

As anticipated for some time, automobile manufacturers will have to pay higher prices on tire equipment orders. The lead has been taken by the Goodyear Tire and Rubber Company, which has advanced its prices to automobile manufacturers approximately in the same proportion as its recent raise in consumers' prices. Other tire companies are expected to follow this move, and some of them feel that an advance of from 15 to 20 per cent would be justified, for it would not be equal to the increases already made by the car makers on their own products.

For several years the big equipment contracts have been made at very low figures on the theory that the renewal business resulted in developing a perpetual influx of new customers. Under present conditions, however, the character of these contracts made on the old basis is too burdensome to continue. While uniformly limited to three month terms, with a provision for readjustment on renewal, practically speaking the tire makers' options were never exercised. It is, therefore, probable that the increase will affect the full season's requirements.

Amazon's Aid to Dealers

There are many sides to business, and even the smallest enterprises have aspects that require consideration and study. The day has passed, so far as reputable tire manufacturers are concerned, when it was considered good business to unload upon the dealers all the goods that they could be induced to take.

Tire manufacturers now realize that it is the dealers who make business move. Though it is desirable of course that their contracts should cover as much stock as possible, it is no longer forgotten that a dealer with a lot of dead stock on his hands will not be a good man to approach for an order next year. One of the best ways to make a dealer's contracts profitable is to help him to sell the goods.

The Amazon Rubber Company, Akron, Ohio, is going to unusual lengths in this direction, and has prepared an advertising plan that involves no expense to the dealer, though it is calculated to benefit him immensely. As soon as the dealer takes in a stock of Amazon goods the company gets behind him with advertising. Newspaper advertising, outdoor displays and window displays are kept going, all in the name of the local Amazon dealer. Bulletin signs of sheet steel measuring 5 x 8 ft. and road tacking signs 12 x 36 in. are furnished for the dealer to place. Where the business warrants it, big city wall signs are painted. Series letters to prospects, miscellaneous advertising matter, and lithographed stationery also are supplied gratis.

Keystone Tire Suit Discontinued

The suit of the United Motors Company, of Rutherford, N. J., against the Keystone Tire and Rubber Company for infringement of patent has been discontinued. The United Motors Company, which is not connected with other companies of similar name, started suit last June for the infringement of patent No. 1,107,098. The tread of the Keystone tire was claimed to be an infringement of this patent.

Newerf to Distribute J. & D. Tires

W. D. Newerf, head of the W. D. Newerf Tire Company, Los Angeles, Cal., has just concluded arrangements to become Pacific coast distributor for the J. and D. Tire Company, Charlotte, N. C. Newerf will move his headquarters to San Francisco and will distribute J. and D. products throughout the west.

He was coast distributor for the Goodyear Company from 1904 to 1911, and from 1911 to 1915 he distributed the Miller Rubber Company's tires. Since 1915 he has done an extensive tire jobbing business throughout the Pacific territory. Under the new arrangements he will operate under the corporate name of the W. D. Newerf Tire Company.

Lee E. Clough Now with Mason

Lee E. Clough, one of the best-known solid tire men in the country, and a pioneer in solid construction, has been secured by the Mason Tire & Rubber Co. to take charge of the new solid tire department of the Mason factory at Kent, Ohio. Mr. Clough has resigned from the Firestone Tire Co. of Akron and will assume his new duties with the Mason Co. at once.

Mr. Clough was born in Akron in 1873 and educated in Akron's public schools. His first position in the business world was with the B. F. Goodrich Co., where he remained for five years. He later went with the Goodyear Tire & Rubber Co., where he was in the solid tire department of that company. In 1905 Mr. Clough became connected with the Firestone Co., where he remained for thirteen years. For eleven years of this period he was in charge of the solid tire department and for the past two years has devoted himself to research work in the developing department and laboratory of the Firestone Co.

The solid tire department of the Mason Co. is almost ready for operation. The company has been fortunate in securing rapid delivery on equipment for manufacturing the tires and it is expected that the first solid tire will be on the market in a few months.

Ertel Branch Manager for Kelly-Springfield

J. D. Ertel, formerly office manager of the Minneapolis branch of the Kelly-Springfield Tire Co., has been appointed office manager of the New York branch.

Pittsburgh Branch for Miller

The firm of Stewart and Haroper, wholesale distributors for the Miller Rubber Company, Akron, Ohio, has been dissolved, and the Miller tire business in Pittsburgh, having assumed unexpectedly large proportions, the Miller Rubber Company has established a direct factory branch in that city. It is managed by S. S. Stewart, formerly of Stewart and Harper, and is at 5968 Baum Boulevard.

Keystone Takes Gryphon Output

Gryphon tires, first brought to the trade's attention more than a year ago, when the Gryphon Tire and Rubber Company, New York City, disclosed its plans to build a quality product, will henceforth give way to tires bearing the Keystone brand. The Keystone Tire and Rubber Company has acquired on a cost-plus basis the entire Gryphon output.

C. J. Welch Promoted

C. J. Welch, for several years manager of the truck tire department of the United States Tire Company, New York, has been promoted to the position of assistant sales manager. He will continue to devote his special attention to the truck tire end of the business, in which he will have the assistance of C. K. Whidden, formerly in charge of the truck tire department at the Philadelphia branch of the United States Tire Co., who has been promoted to the post of assistant manager of the truck tire department in the general offices.

Mr. Welch has been identified with the United States Tire Company since his graduation from college in 1907—first with the Morgan and Wright sales department, of which he became assistant manager. He went to the Chicago branch of the United States Tire Company when it was formed in 1911 as assistant to J. C. Weston, who at that time had charge of sales of bicycle, motorcycle and truck tires in the Middle West. Mr. Weston is now vice-president of the United States Tire Company.

Huge Goodyear Output

The Goodyear Tire & Rubber Co., Akron, Ohio, is now turning 20,000 tires a day and is more than seventy-five days behind in its tire orders, according to a report from the rubber metropolis. The total Goodyear tire sales for the six months ended May 1 exceeded $66,000,000, showing an increase of 40 per cent over the corresponding period of last year. A year ago the company had 300 women working in its Akron plant; it now employs 3000 women there and this number will soon be increased to 5000.

Fisk Expects Big Year

The Fisk Rubber Co., Chicopee Falls, Mass., and its subsidiary, the Federal Rubber Co., Cudahy, Wis., expect to do a gross business in 1918 of better than $50,000,000. This would place the Fisk organization among the first five leading tire manufacturers of America. In 1917, the sales of the Fisk Company were over $29,000,000. Recent months are said to have shown a handsome gain in new business. In March, business showed an increase of 33 per cent over the same month of last year. The Federal Rubber Co., which did $8,000,000 gross in 1917, expects to do close to $20,000,000 this year. The Fisk Rubber Co. earned 21 per cent on common stock in 1917.

Another Mason Quarterly Dividend

The Guardian Savings & Trust Company of Cleveland, Ohio, on June 1 was appointed transfer agent and registrar of the preferred and common stock of the Mason Tire & Rubber Co., Kent, Ohio.

The seventh quarterly dividend on preferred stock of the company was declared payable on July 1 to stockholders of record June 15. Hereafter stock books will close on the fifteenth of the month preceding date of dividend payment.

This announcement is made by D. M. Mason, treasurer of the Mason Tire & Rubber Co.

Empire Has Large Month

Shipments made by the Empire Tire & Rubber Co., Trenton, N. J., during the month of March amounted to $625,000, with estimated earnings in excess of $80,000, according to J. E. Baum, president of the company. This is one of the largest months in the history of the Empire Tire & Rubber Co., which is now filling large Government contracts for fire hose and gas masks.

MARKETS

Manufactured Rubber Goods

NEW YORK, June 25, 1918.

Conditions governing manufacture and distribution are changing rapidly, and are constantly becoming more serious. This is particularly true of materials, labor and transportation. The sight of motor trucks plying back and forth on express business between points many miles apart is becoming very common.

One of the noticeable features of the rubber trade at the present time is the attitude of the jobbers in regard to prices. While formerly there was some price cutting and traveling salesmen were allowed a certain leeway on many items, prices are now firmly held in all lines. Shortages continue to appear in many lines, and jobbers will no longer take orders for fall dating at prices ruling when the order is taken on a long list of merchandise. Manufacturers have withdrawn all prices on some lines and are quoting on specifications only.

There is still much speculation as to the probable effect of the new freight rates, but it is generally conceded that they will result in a further advance in prices of rubber goods generally. Just now prices do not appear to concern the trade nearly so much as the ability to get the goods. To date both retail and jobbing sales are said to be in excess of last year, and if merchandise can be secured to fill all the wants of the trade the rubber business throughout the country this year will be the best in the history of the industry. Jobbers and retailers now appear to be united in the belief that practically all lines of rubber goods will advance further in price, and they are all striving to get goods. Collections are good, and cash sales are much above normal.

MECHANICAL GOODS

A fairly heavy volume of business is being done in rubber mechanical goods, and a canvass of the trade has confirmed the belief that business in general is better than it was at this season last year. Manufacturers say that they are not only being troubled in the matter of materials, but labor problems constantly are becoming more serious. The shortage of skilled labor is particularly felt, and there are indications that this class of workmen will be transferred into other lines of work from occupations that are regarded as non-essential. It is reported that manufacturers that are not engaged in Government work have been approached by Federal officials with a view to ascertaining how much necessity exists for retaining on pay rolls the men at present employed. Where manufacturers have more skilled workmen than the representatives of the Government Labor Bureau believes they should have, factory managers are told that surplus men must be taken and placed in other local factories, or sent elsewhere to places where Government work is being done.

TIRES

There continues to be a good demand for automobile, bicycle and motorcycle tires, and many dealers who stocked up heavily in anticipation of higher prices say they do not regret having done so, because they believe a shortage and higher prices are sure to come before the season is over. Many users of pleasure cars and commercial vehicles are buying tires ahead of actual needs in anticipation of shortage and much higher prices. Deliveries are good on most makes. There is a big retail demand for tire repair materials and devices. Many manufacturers are not allowing their salesmen sell beyond a period of thirty days and insist upon them taking orders as near as possible for two weeks' delivery in moderate quantities. No one can tell how soon prices may take a jump of from 10 to 20 per cent, consequently manufacturers do not feel like loading up a lot of new customers for long future deliveries, especially in view of the fact that they are already finding it almost impossible to fill orders at present prices. There are shortages in certain sizes, and manufacturers are still obliged to get much of their supplies and new equipment by express—a very costly process.

DRUGGISTS' SUNDRIES

Both jobbers and retailers report a good volume of business in all lines of rubber sundries, and the trade is being confronted more every day with the problem of securing goods. Nearly all lines are becoming harder to get, and jobbers are unable to replenish their stocks as rapidly as desired. Manufacturers are taking orders subject to their ability to make shipments and to prices prevailing at the time of shipment. This unsatisfactory condition brought about by the war makes it uncertain both as to when the goods will be delivered, if at all, and at what prices. Manufacturers are devoting their attention to the requirements of the Government, which are of course given preference. They are suffering more and more from a scarcity of labor, which is manifesting itself in the workmanship on many articles. Jobbers say that many items of rubber sundries show evidence of having been made by hands unskilled in rubber manufacturing. Most manufacturers of bathing caps have discontinued the making of these lines. In fact the general tendency is to discontinue manufacturing articles for which there is not a staple demand, and articles that are not considered as essentials. Elsewhere in this issue will be found a story of steps that are being taken to standardize rubber sundries. There is much room for standardizing in these lines.

Cotton Yarn and Fabric

NEW YORK, JUNE 25, 1918.

The raw cotton market continued to gain strength during the past two weeks, favorable war news and buying of October by some of the largest spot firms in the business having helped the market along. Reports from the South of an extreme hot wave threatened for a time to weaken the market, but late advices showed that instead of harming the crop the hot wave has helped it along by killing, or helping to kill, the loss caused by boll weevil and lice. It also enabled the farmers to clear their fields of grass. The hot wave was broken several days ago.

Practically all the recent weather reports from the South have been favorable, and crop conditions are described as excellent in confidential reports received by local cotton brokers. Exports of cotton continue to increase, and this has also been a factor in the strength of the market. The placing of new ships in commission every day is making more cargo space available for exports of cotton, and there is a good demand in all European countries for this American staple. Exports of cotton on June 20, for instance, totaled 17,067 bales, bringing the clearances so far this season up to 3,686,981 bales, compared with 5,200,988 at the same time a year ago.

Damage by the boll weevil plague is said to be increasing in some of the infected districts of Georgia, Alabama, and Mississippi. Contract business is on the increase, the technical position of the market and the big discounts allowed below the spot prices are partly responsible for the big contract movement which has set in. Mills now have rare opportunities to buy contracts for fall options at a material discount below the probable price on which prices of cotton goods will be based by the Government.

EGYPTIAN COTTON

At last reports, it was understood in the trade that the United States Shipping Board has finally taken decisive action limiting the imports of Egyptian cotton into this country to 80,000 bales for the year. As already three-fourths of this amount has been imported, only 20,000 bales more may now be imported. No arrivals have been reported from Boston during the past few weeks, and it is probable that the submarine menace off the Atlantic coast will stop shipments for the time being. No improvement has been reported in the condition of the Arizona crop of Egyptian cotton. It is said that some acreage of Egyptian cotton has been planted in California this year, but the bulk of the crop of the "native State" will be Durango cotton, a Mexican product said to be somewhat like the Egyptian.

SEA ISLAND

All reports from Sea Island belt continue discouraging, and poor weather and the boll weevil are said to have taken a heavy toll of the new crop. Values are nominal at 75 cents per pound for average extra choice, but there is little business reported due to the small supplies in the hands of sellers. No official estimate of the present crop has been heard yet, but expectations are that it will be very much below the yield of last year.

YARNS

The demand for cotton yarns exceeds the supplies in the hands of sellers, and cases have been recorded where civilian yarn consumers have paid high premiums to secure needed supplies. Many knitters and weavers are badly in need of stocks and willingly pay almost any quotations asked. Allotments of yarns to spinners working on Government orders are said to be reaching the mills very slowly, and some dissatisfaction has been reported on this score. In order to facilitate deliveries of Government wool to spinners, all existing embargoes on wool have been lifted for a period of two months. Practically all grades are impossible to get in the open market, and prices are all nominal.

FABRICS

The market for fabrics is in a very unsettled condition, and the establishment of prices by the Government is expected within a very short time. The Government has been taking large quantities of fabrics from the market, and quotations have been wholly nominal for some time. Mills are continually advancing their prices, and overnight changes are frequently reported.

TIRE FABRICS

There is a strong demand reported for tire fabrics, and the market holds firm. An advance in 17¼ ounce carded Egyptian to $1.30 per square yard was the only change reported during the past two weeks. Other prices are unchanged, with 17½ ounce combed Sea Island firm at $1.70 per square yard, carded Egyptian steady at $1.20 per square yard, carded Peelers steady at $1.10, and combed Peelers at $1.15 per square yard. The labor problem is still a serious feature of the market, as shortages of help in the mills has cut down production somewhat. The Shipping Board's restrictions on imports of Egyptian cotton will also probably necessitate a cutting down in production.

HOSE AND BELTING FABRICS

Prices on mechanical ducks are nominally unchanged, with little to be had. The market is strong, and there is a good demand, with most of the country's production going to Government uses. The War Industries Board is at present holding conferences to determine a just basis upon which to fix prices for ducks, but nothing definite regarding the outcome of the negotiations had been heard up to the time of writing. The large and increasing demands of the Government will undoubtedly make it harder for rubber manufacturers to obtain supplies. The extension of the enlisted personnel of the Navy will cause a heavy demand for more ducks for uniforms.

DRILLS, SHEETINGS AND OSNABURGS

The market has been generally quiet since the last writing, with no quotable changes in prices recorded. There have been some slight fluctuations, but no definite changes. The market for drills has been a trifle weak, with little trading reported because of the small stocks available for spot trading. The market for sheetings has been generally quiet, with offerings for delivery in August a trifle under the spot prices quoted below. The Government continues to take most of the output of osnaburgs, as this material is still needed for camouflage purposes in Europe.

BURLAPS

Trading in burlaps has been quiet generally since the last report, and the prices are unchanged. No large arrivals have been reported within the past week, although some cargoes came into port two weeks ago, having successfully run the submarine zone off the coast. Only a routine business has been transacted in spot burlap, but a little activity was noted in future delivery sales.

New York Quotations

TIRE FABRICS

17¼-ounce Sea Island, combed,	sq. yd.	$1.70@ —
17¼-ounce Egyptian, combed...		1.40@ —
17¼-ounce Egyptian, carded...		1.30@ —
17¼-ounce Peelers, carded.....		1.10@ —
17¼-ounce Peelers, combed.....		1.15@ —

DUCKS

Single Filling (pound basis).....	lb.	.78
Double Filling (pound basis).....		.79

DRILLS

37-inch 2.35-yard	yd.	.35
37-inch 2.75-yard		.30
37-inch 3.00-yard		.29
37-inch 3.25-yard		.27
37-inch 3.50-yard		.26
37-inch 3.95-yard		.22½
37-inch 2.00-yard Southern.....	lb.	.75
38-inch 2.00-yard Northern.....		—
40-inch 2.47-yard Northern.....	yd.	.35
40-inch 2.47-yard Northern.....		—
52-inch 1.90-yard Southern.....		.40
52-inch 1.90-yard Northern.....		.40

SHEETINGS

40-inch 2.35-yard	yd.	.32
40-inch 2.50-yard		.33
40-inch 2.85-yard		.32
40-inch 3.00-yard		.28½
40-inch 3.25-yard		.28
40-inch 3.75-yard		.23
40-inch 3.60-yard		.25½
40-inch 4.25-yard		.21
38-inch Jacket Cloths.....	yd.	.21@23

BURLAPS

(Spot Carload Lots)

40-inch 8 -ounce		19.00
40-inch 10 -ounce		23.25
40-inch 10½-ounce		24.00

Chemicals and Compounding Materials

NEW YORK, June 25, 1918.

The market for chemicals and compounding materials, which are used by the rubber manufacturing trade, has displayed signs of greater activity during the past two weeks. The period of depression caused by the Government retriction of rubber imports has given way to a more cheerful tone, as manufacturers seem to be assured of a fair supply of crude rubber at least over the balance of the current year, and feel justified in going ahead. They have ample orders on hand for finished goods and begin to search the market for supplies. Anticipation of contract deliveries are more frequently coming to the sellers, and in some instances manufacturers are trying to double their contracted quota.

Under the smallness of supplies a general steadier tone prevailed, and in some commodities special circumstances have brought out sharp advances. Labor shortage and fear of Government control have forced a sensational advance in rosin, turpentine and pitch. Scarcity of raw materials has imparted special strength in the dry colors with blacks and blues held for higher prices. Although no definite announcement was forthcoming from Washington it was generally expected that the Government would fix the price on sulphuric acid at the basis of $30 per ton for 60 degrees.

SPIRITS OF TURPENTINE

An unsettled state of this commodity was caused by the report that the Government was intending to place the naval stores upon the list of non-essentials, and the talk of a closing down of this entire industry has had a great effect on prices. But the real strength of the market lies in the fact, that a scarcity of labor is going to force additional curtailment even if the Government keeps its hands off the industry. Pure gum spirits were quoted at 63c., an advance of 11c. per gallon, and wood turpentine was held in the range from 54 to 57c., an advance of 7c. per gallon.

ROSIN

The same conditions which forced the sharp advance in the turpentine market also sent rosin prices up to a new high level. Barrels of 280 pounds advanced from $8.25 to $9.95.

TOLUOL

The market is dominated by the Government regulations, with occasional releases reported to private consumers, showing their requirements to be essential. Such are receiving their small stocks on the basis of $1.50 per gallon for tank cars, and $1.55 per gallon for drums in any quantity.

ANTIMONY OXIDE

The market is without quotable change at 15 to 16c. per pound, although demand has firmed up. Sulphuret red is priced at 25 @ 26c. per pound, crimson at 45 to 50c., and golden at 28 @ 30c.

GLYCERINE

Sellers are advising consumers that supplies are continually getting lower as the consumption through Government channels is increasing, and the market has a firmer undertone.

BLACKS

A very strong tendency is noted on the scarcity of raw materials, which is the one matter of supreme interest to producers. Supplies on hand are very small and dealers who are able to make prompt delivery are getting fancy prices. It is difficult to buy any drop black under 7c. or ivory under 26c. The lampblacks are in excellent demand and some sales are being made at very stiff prices, the range being quoted at from 15 to 45c.

BLUES

The purchase of 100,000 pounds by the Government had the effect of stimulating the market, but the sharp advance last week has for the moment checked first hand business to a certain extent, and there has been a disposition by buyers to hold back orders for a time.

ANILINE OIL

Sellers report a very firm market with inquiry sufficient to absorb virtually all offerings. Prices are without quotable change at 27 to 28c. per pound, with the outside price prevailing in most cases.

BENZOL

Recently noted easiness continues under falling off of demand, and it appears as though consumers have been liberally supplied. Prices are being shaded as to quality, ranging from 25 to 28c. per gallon.

CAUSTIC SODA

While there is no sign of real weakness a slightly easier feeling was noted.

Standard makes seem to be holding fairly steady at 4½c.

ZINC OXIDE

The spot market is very strong as the trade will have to get along with what the Government does not want. While no price changes are made there is a constant tendency toward higher prices for prompt delivery.

LINSEED OIL

The undertone is very strong under the prediction that so little will be received from South America, that there will be a shortage before the next crop begins to move. Prices are holding firm at the advance to $1.58 @ $1.60, and in most instances the outside price is quoted.

TARTARIC ACID

Owing to the inability of manufacturers to increase even moderately their importation of crude material, tartaric acid is virtually nominal on spot, and second hands have little to offer, as their supplies are constantly dwindling under the increasing demands for domestic consumption. Closing prices for crystals were nominally at 86 @ 90c.

SULPHURIC ACID

The situation remains unsettled as the trade is expecting fixing of prices by the Government. Some reports were heard that the basis of $30 per ton would be maintained for 60 degrees.

Prices Current for Chemicals, Fillers, Colors, etc.

Acetone	lb.	.25½ @	.25¾
Accelerator, in drums	lb.	.85 @	1.00
Acids, Acetic, 56%	lb.	.14 @	.18
Carbolic, C. P.	lb.	.48 @	.52
Cresylic, 95%	gal.	1.00 @	1.15
Muriatic, 20 deg.	lb.	.02¼ @	.02½
Acids, Muriatic, 22 deg.	lb.	.02¾ @	.03
Nitric, 42 deg.	lb.	.09¾ @	.10
Nitric, 40 deg.	lb.	.09½ @	.09½
Sulphuric, 60 deg.	lb.	.01½ @	.02
Tartaric, crystals.	lb.	.88 @	.89
Aluminum Flake	**ton**	**28.00**	**@ 30.00**
Aniline oil, bulk basis		**.27**	**@ .27½**
Antmoiny, metal spot	lb.	13.12½ @	13.37½
Oxide	lb.	15.00	@ 16.00
Sulphuret, red.	lb.	.25 @	.26
Sulphuret, golden.	lb.	.28 @	.30
Sulphuret, crimson.	lb.	.45 @	.50
Asbestos	**ton**	**35.00**	**@ 45.00**
Asphaltum, Egyptian	lb.	.20 @	.25
Domestic	ton	22.00 @	30.00
Barium sulphate, technical	lb.	.04½ @	.05
Sulphide	lb.	.07¼ @	.07½
Barytes, prime white imported	**ton**	***40.00**	**@ 45.00**
white, domestic.	ton	32.00 @	36.00
off color domestic.	ton	22.00 @	24.00
Benzol, pure, bulk	gal.	.25 @	.30
Beta-naphthol, sublimed.	**lb.**	**.85**	**@ .90**
unsublimed	lb.	.65 @	.75
Blacks, Drop	lb.	.05½ @	.15
Ivory	lb.	.16 @	.30
Carbon, gas, cases.	lb.	.24 @	.40
Lampblack, R. M.	lb.	.15 @	.45
Mineral blacks	ton	35.00 @	45.00
Blues, Prussian	lb.	1.25 @	1.35
Soluble	lb.	1.20 @	1.40
Ultramarine	lb.	.17 @	.50
Browns, Umber, Turkey, burnt, powdered	lb.	.05 @	.07
American, burnt.	lb.	.03½ @	.04
Cadmium sulphide, yellow.	**lb.**	**2.00**	**@ 2.25**
Carbon, bisulphide, bulk.	lb.	.08½ @	.09
tetrachloride, drums.	lb.	.15½ @	.17
Caustic Soda, 76@78%	lb.	.04½ @	.04¾
Chalk, precipitated, extra light	**lb.**	**.05 @**	**.05¾**
light	lb.	.04¾ @	.05¼
heavy	lb.	.03¾ @	.04¼
China clay, domestic	ton	12.50 @	20.00
imported	ton	*20.00 @	36.00
Fossil flour	**lb.**	**.03¾ @**	**.05**
Gilsonite	ton	36.00 @	50.00
Glue, extra white	lb.	.36 @	.45
medium	lb.	.31 @	.35
low grade		.24 @	.27
Glycerine, C. P. (drums)	lb.	.62½ @	.63
Graphite, flake (bbl.)	lb.	.18 @	.20
powdered (bbl.)	lb.	.13 @	.15
Green, chrome, R. M.	lb.	.14 @	.20
Ground glass (fine)	lb.	.03½ @	.04
Hexamethylene	lb.	1.10 @	1.15
Infusorial earth, powd'd.	ton	60.00 @	—
bolted	ton	70.00 @	—
Iron oxide, red, reduced grades	lb.	.05 @	.06
red, pure, bright.	lb.	.12 @	.15
Lead, red oxide of	lb.	.10 @	.10½
sublimed blue	lb.	.08½ @	.09
white, basic carb.	lb.	.09¼ @	.10¼
white, basic sulp.	lb.	.08¾ @	.09¼
Lime flour	lb.	.01½ @	.01¾
Litharge	lb.	.09¾ @	.10¼
English	lb.	*.12 @	.13
sublimed	lb.	.09¼ @	.09¾
Lithopone, domestic	lb.	.07½ @	.08½
Magnesia, carbonate	lb.	.12½ @	.13½
calcined, heavy	lb.	.12 @	—
calcined light	lb.	.75 @	.80
Magnesite, calcined, pwd.	**ton**	**65.00**	**@ 70.00**
Mica, powdered	lb.	.03¾ @	.04¾
Mineral rubber (asphaltum base)	ton	80.00	@115.00
Naphtha, motor gasoline, (steel bbls.)	gal.	.24 @	—
68 @ 70 degrees (steel bbls.)	gal.	.30 @	—
70 @ 72 degrees (steel bbls.)	gal.	.31 @	—
73 @ 76 degrees (steel bbls.)	gal.	.33 @	—
machine (wood bbls.)	gal.	.42 @	—
Oil corn, crude	cwt.	16.75	@ 17.00
corn, refined	cwt.	20.72	@ 20.92
linseed (bbl.)	gal.	1.58 @	1.60
palm, Lagos	lb.	*.39 @	.40
pine, yellow	gal.	.45 @	.46
rapeseed, refined	gal.	1.75 @	1.80
rapeseed, blown	gal.	*1.90 @	2.00
rosin, first rectified.	gal.	.41 @	.43
tar (commercial)	gal.	.34 @	.35
Orange mineral, American.	lb.	.13¼ @	.14½
imported	lb.	*.15 @	.20
Paraphenlyenediamine	lb.	3.25 @	4.00
Petrolatum, bbls., amber.	lb.	.06 @	.07
pale yellow	lb.	.06 @	.07
Pine tar, kiln	bbl.	11.00	@ 11.50
Pitch	bbl.	5.25 @	—
Plaster of paris	bbl.	2.00 @	2.50
Red, Tuscan	lb.	.25 @	.35
Indian (reduced).	lb.	.07 @	.09
Standard	lb.	.10 @	.13
Rosin (common to good)	**@**		
280 lbs.	bbl.	9.95 @	—
Rotten stone, powdered.	lb.	.02½ @	.04¼
Rubber, substitute, black.	lb.	.13 @	.17
white	lb.	.15 @	.24
brown	lb.	.20 @	.25
Shellac, fine orange	lb.	.69 @	.73
T. N.	lb.	.63 @	.64
Bleached ordinary.	lb.	.61 @	.62
Bleached bonedry	lb.	.71 @	.72
Silex (silica)	ton	28.00	@ 36.00
Soapstone, powdered	ton	10.00	@ 12.50
Starch, corn, powdered.	lb.	4.25 @	4.55
Sulphur, crude	ton	*50.00 @	..
refined, flour, per 100-pounds, in bbls.		3.85 @	4.40
roll		3.70 @	4.15
commercial		3.25 @	3.75
Talc, American	ton	15.00	@ 22.00
French	ton	*30.00	@ 35.00
Toluol, pure, in drums.	gal.	1.50 @	1.55
Tripolite earth	**ton**	**60.00**	**@ 70.00**
Turpentine, pure gum— spirits	gal.	.63 @	—
wood	gal.	.54 @	.57
Venice, artificial.	gal.	.12 @	.13
Vermillion, English	lb.	2.00 @	2.10
Wax, beeswax, crude, yel.	lb.	.41 @	.42
ceresin, white	lb.	.18 @	.25
carnauba, No. 3	lb.	.76 @	.80
Wax, Montan	lb.	*.35 @	.40
ozokerite, black	lb.	.75 @	.80
ozokerite, green	lb.	*.85 @	.95
Paraffin, refined, 118/120 M. P. (bbls.)	**lb.**	**.13¼ @**	**.13½**
Wax, Paraffin, 123/125 M. P.	lb.	.12¾ @	.13¼
128/130 M.P.	lb.	.13 @	.13½
133/136 M.P.	lb.	.14¾ @	.15¼
Crude, 120/122 M.P.	lb.	.09½ @	.10
124/126 M.P.	lb.	.09⅞ @	.10
Whiting, commercial	cft.	1.25 @	—
Alba	cwt.	1.25 @	—
Whiting, Paris, white, American	cwt.	1.50 @	1.75
English cliffstone.	cwt.	1.75 @	2.75
Yellow chrome	lb.	.30 @	.35
Zinc oxide, States Brand.		.10 @	—
horsehead brand.	lb.	†.10¼ @	.10½
selected	lb.	†.10⅝ @	.11
"XX red"	lb.	†.10¼ @	.10¼
French process, green seal	lb.	†.13½ @	.13⅝
red seal	lb.	†.13 @	.13¼
white seal	lb.	†.14 @	.14¼
Zinc oxide, States brand.		.10 @	—
Zinc substitutes	ton	35.00 @	40.00
Zinc, sulphide, pure	lb.	.06 @	.07

*Nominal. †Contract prices.

Crude Rubber

NEW YORK, June 25, 1918.

Restricted imports and fixed maximum prices have made for a quiet market in the crude rubber descriptions during the past two weeks, and trading has settled down to a routine basis. Free rubber not falling under the allocation is almost unobtainable, as shipments in transit before May 8 have been easily absorbed by manufacturers anxious to increase their stocks. Importers are really holding now a very low volume of crude rubber on hand and are reserving this for their preferred customers.

Maximum prices are ruling for every grade of free rubber and so far no underselling has been noted. The situation in allocated rubber for future shipment is entirely different. Especially Plantation rubber for this delivery continues unsettled. Conditions at Singapore are reported as not satisfactory, and lower offerings are depressing the market. Growers will undoubtedly take some steps to rest their plantations in order to curtail the output and stabilize the price. But at present selling pressure of accumulated rubber is noted in all descriptions of the Far East. First latex pale crepe has been shaded to 48c. and smoked sheets ribbed are obtainable at 45c. Clean brown crepe was offered at Singapore as low as 30c., which will bring it f. o. b. New York up to 42c.

Although the Brazilian grades are also offered for allocation shipments at concessions from established maximum prices, the declines are not so marked as in the Ceylons. Limited supplies at primary centers act here as a sustainer of values. Future up-river fine was quoted at 63c. and the medium grade at 57c.

War Trade Board shrinkage allowances for Brazilian rubbers are given elsewhere in this issue.

	Spot.	June-Aug.	Sept.-Nov.
Para—Up-river fine	68	63	..
Up-river medium	63	57	..
Up-river coarse	40	36	..
Caucho ball	40	36	..
Islands fine	59	57	..
Islands coarse	27	26	..
Cameta	28	27	..
Madeira fine	70	..	..
Ceylons-smoked sheets, ribbed.	62	62	45
Smokers sheets, plain	60	60	43
First latex pale crepe	63	63	48
Amber crepe	60	60	46
Clean brown crepe	58	58	42
Centrals—Corinto, prime	39	39	..
Esmeralda, prime	39	39	..
Mexican scrap	35	35	..
Balata sheets	97	..	..
Balata, block Panama	59	..	..
Guayule	35	35	..
Africans—Rio Nunez, string.	55	..	..
Massai, red	55	..	..
East Indian Pontianak	15	..	..
Palembang	16	..	..

* Nominal.

Scrap Rubber

NEW YORK, JUNE 25, 1918.

The scrap rubber market retains a steady tone, despite the fact that very little business is being done. There is no quotable change in prices.

The following prices were paid for scrap rubber delivered at the reclaiming mill:

Boots and shoes	9¼ @ 9¾
Arctics, trimmed	6¾ @ 7
Arctics, untrimmed	5¾ @ 6
Tires—Automobile	5¾ @ 6
Bicycles, pneumatic	5@ 5¼
Mixed hose	2@ 2¼
Air brake	5¾ @ ..
Inner tubes, No. 1	22¼ @ 23½
Inner tubes, No. 2	11½ @ 11¾
Inner tubes, red	11½ @ 11¾

Among the Dealers

The Modern Vulcanizing Company has moved to new and larger quarters on Higuera Street, San Luis Obispo, Cal.

J. A. Milne has moved from Los Angeles to Santa Barbara, Cal., and will operate a vulcanizing shop and Federal tire salesroom at West Corilla Street.

William Elliott has purchased the business of the California Rubber Company, Santa Barbara, Cal.

Freeze and Freeze, automobile accessory dealers in Santa Barbara, Cal., have added a vulcanizing department.

C. A. Hempler, Phillipsburg, Kan., has opened a vulcanizing shop.

C. H. Stone has opened a vulcanizing plant at 317 Van Ness Avenue, San Francisco, Cal., and will distribute United States tires.

The Pacific Pipe and Supply Company has opened salesrooms at 706 Van Ness Avenue, San Francisco, Cal., for De Lion tires and Palmer tubes.

S. W. Piercy has purchased the vulcanizing plant at 418 Golden Gate Avenue, San Francisco, Cal., and will conduct it under the style of Piercy Tire Company.

T. S. McChesney has opened a branch store for the Tire Construction Company of Los Angeles, Cal., at 629 State Street, Santa Barbara, Cal.

O. W. Jones has organized the Victor Tire Co., Fresno, Cal., and has opened tire salesrooms at 1216 Van Ness Avenue.

The Giffen-Wolfe Agency, Fresno, Cal., has added a tire department and specializes in the Kelly-Springfield tire.

The N. F. Vulcanizing Works have moved to 306 West Seventh Street, Hanford, Cal.

W. H. Snyder, North Bend, Neb., has bought The Tire Shop.

The Kagin Tire & Repair Co. has opened quarters at Nicollet Avenue, Minneapolis, Minn.

The Interior Rubber Co., Wenatchee, Wash., has opened quarters in the Central Building.

THE ASKAM RUBBER CO.
MILFORD, CONN.

RECLAIMED RUBBER

ASKAM SPECIAL WIRE STOCK

LOWEST SPECIFIC GRAVITY—HIGHEST TENSILE STRENGTH

SAMPLES FURNISHED ON REQUEST

Chemicals for the Rubber Trade

States Brand — "MADE IN AMERICA" — APPROX. 17% FREE COLLOIDAL SULPHUR

STATES BRAND RED SULPHURET of ANTIMONY

Use States Brand Sulphuret of Antimony and Thistle Brand Heavy Calcined Magnesia to produce the best rubber products.

The excellent results obtained from these materials encourage their use in every branch of the rubber manufacture.

produce tubes with utmost heat resisting qualities, long life and numerous selling points

CO-OPERATION and SERVICE have placed Frazar & Co. in the enviable position of being always "A Step in Advance."

SCOTLAND — THISTLE — BRAND. — TRADE MARK

THISTLE BRAND HEAVY and MANHATTAN BRAND LIGHT CALCINED MAGNESIA

We have an intimate knowledge of our PRODUCTS and their FUNCTIONS.

OUR LABORATORY IS CONDUCTED SOLELY FOR THE SERVICE OF THE RUBBER TRADE at LARGE.

WE ARE INTERESTED IN YOUR PROBLEMS and desire to co-operate.

FRAZAR & COMPANY

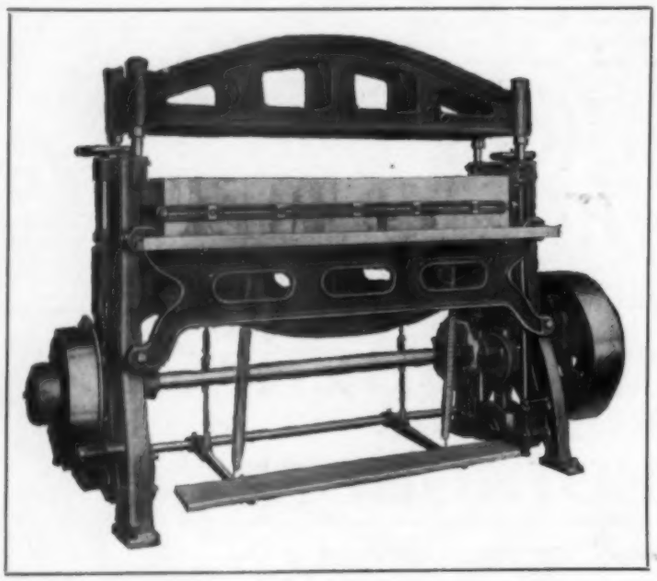
30 CHURCH STREET — Established 1856 — NEW YORK

REPRESENTED BY

J. A. KENDALL, Second National Building, AKRON, OHIO
THE H. R. SANDER COMPANY, 131 Leidesdorff Street, SAN FRANCISCO, CAL.
FRED L. MOSES, 220 Devonshire Street, BOSTON, MASSACHUSETTS
EDWARD B. FULPER, 713-5 American Mechanic Building, TRENTON, N. J.
R. NORTHCOTE & COMPANY, Canadian Pacific Building, TORONTO, ONTARIO

Emergency stocks carried at above points

Gearless Sole-Cutting Machines



These machines are of a type that are being used very extensively in the different trades where dies are employed for cutting out parts from Leather, Rubber (cured and uncured), Rubberized Duck, Linings, Friction Cloth and all other materials used in the making of Canvas or Arctic footwear.

They are manufactured in several sizes and styles to meet the various requirements. Their construction is substantial and reliable throughout.

Further particulars and printed matter will be promptly furnished upon request.

UNITED SHOE MACHINERY CORPORATION

Albany Building *General Department* **BOSTON, MASS.**

F. R. Henderson & Co.

IMPORTERS

Crude Rubber

NEW YORK CITY AKRON, OHIO